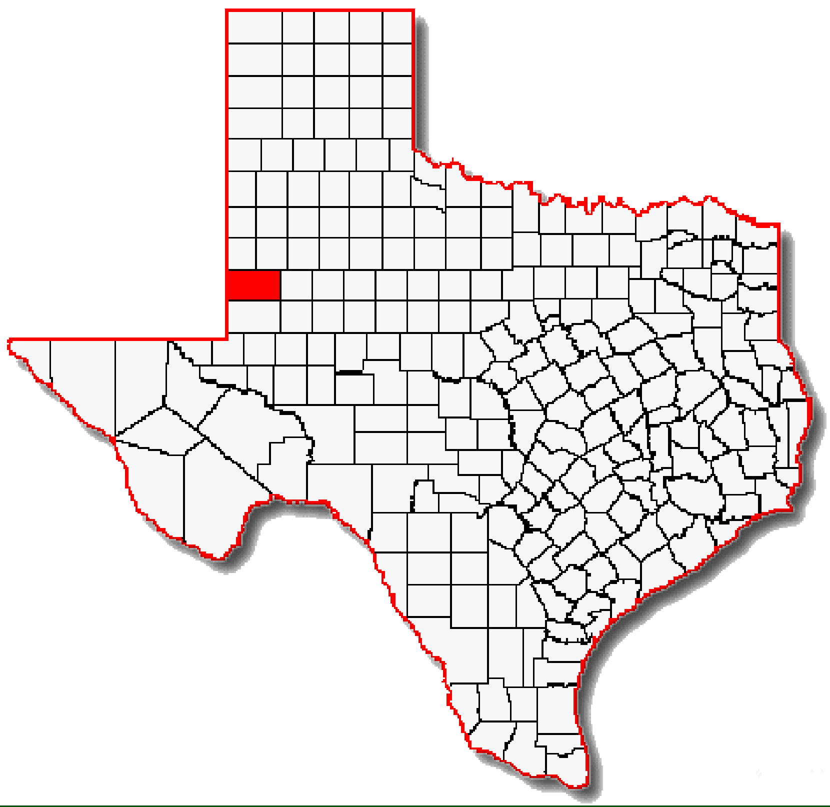
INTEGRATED PEST MANAGEMENT



Gaines County
IPM Program
2011

TEXAS IPM
Partners with Nature

AgriLIFE EXTENSION
Texas A&M System

GAINES COUNTY

INTEGRATED PEST MANAGEMENT PROGRAM

2011 ANNUAL REPORT

Prepared by

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

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.

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 59th 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 4th Grade Educational Event held on 15 September and the Yoakum County Soil and Water Conservation District (SWCD) Jamboree 5th Grader Educational Event held on 28 September.

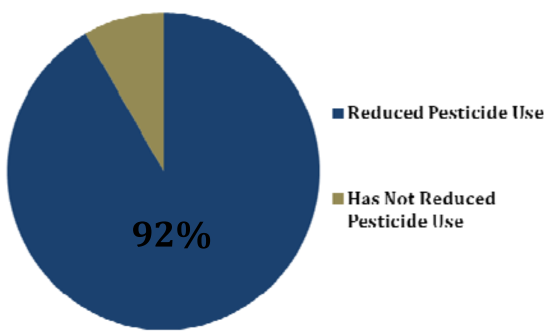
- **Co-author of 3 power point presentations at the Texas A&M University, Department of Entomology Entomology Science Conference** held in College Station, TX 1-3 November.
- **Co-Organizer of the *Innovative Farming-Integrating Limited Water Resources into Today's Farming* Meeting** held on 6 December. 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%).

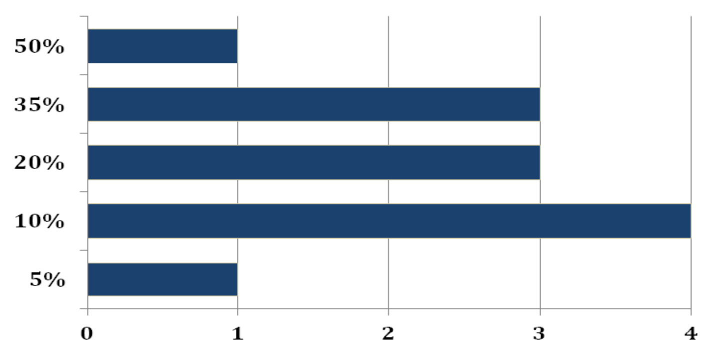
Results

(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.

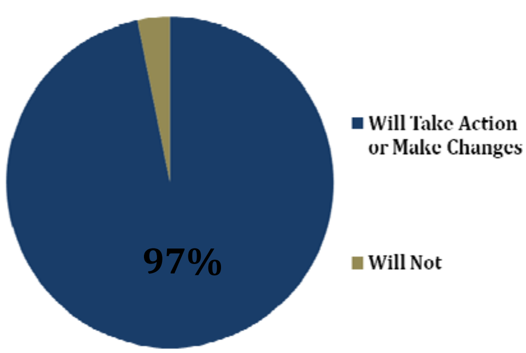
(100%) 12 of 12 producers said they selected varieties to plant on their farm based on the results from the Gaines County IPM Program research trials.



(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.

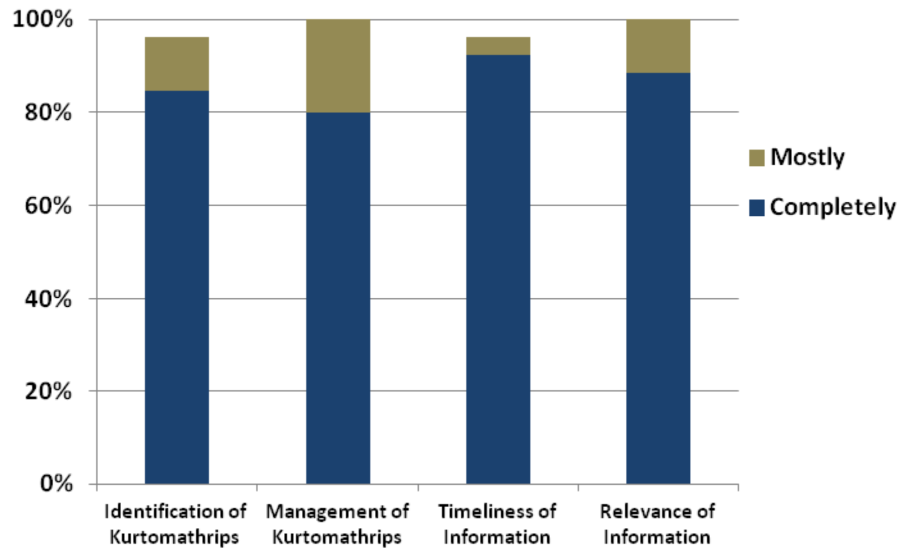
***Table 1.* The percentage of respondents who said the Gaines County IPM Newsletter, grower meetings, research trial results, and radio program *mostly* or *completely* increased their knowledge of the following items:**

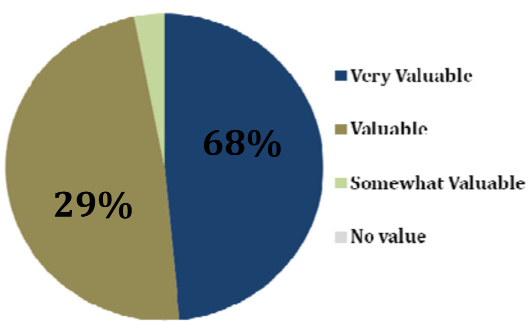
	# of Responses	Percent
Peanut Disease Identification	22 of 31	71%
Peanut Disease Management	20 of 31	64%
Cotton Disease Identification	26 of 31	84%
Use of Tolerant/Resistant Cotton Varieties to Manage Cotton Diseases	29 of 31	94%
Cotton Insect Identification and Management	26 of 31	84%
Description of 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.

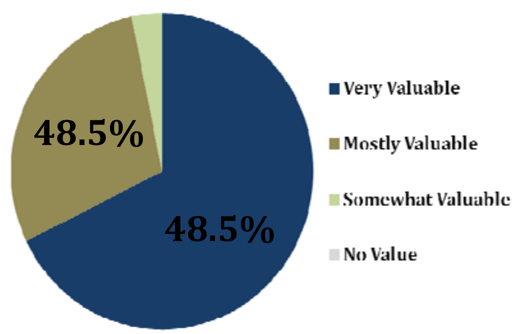
Level of satisfaction

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 information provided by the Gaines County IPM Program was *valuable* or *very valuable* to their operations.



(97%) 30 of 31 respondents said the Texas AgriLife Extension unbiased research trials were *mostly 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 Tallk 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."

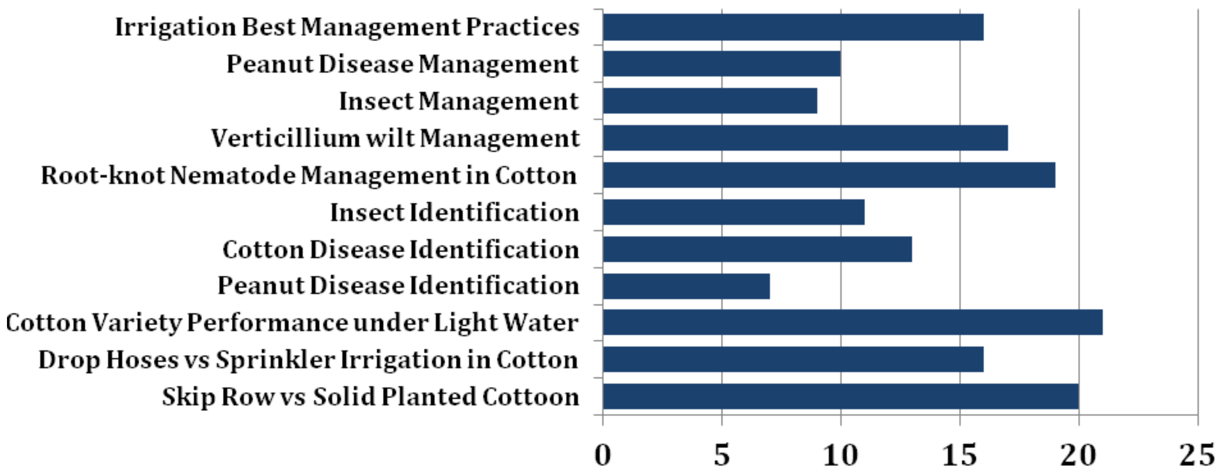
"It's great to have someone dedicated to the job available at a moment's notice."

"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."



Future Needs Identified by Clientele
Number of respondents that indicated they would like the following items addressed in the future.

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 Cheuvront, 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 Celander; 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
Peer Review Publications	1
Published Abstracts or Proceedings	4
Education Articles Published on website	13
Scientific Presentations/Posters	7
Newspaper Articles	
No. Prepared	5
No. Newspaper Carrying	5
Farm Visits	495
Scouts Trained	2
CEU Credits Offered	13
Pest Management Steering Committee Meetings	2
Presentations Made	
County Meetings	2
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
Other Direct Contacts	596

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...	**$67,682**

GAINES COUNTY IPM PROGRAM
FINANCIAL REPORT 2011

Balance from 2010	28,170.82
2010 INCOME	
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	39,111.48
2010 EXPENSES	
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	29,940.08
Balance as of December 31, 2011	37,342.22

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 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.

***Figure 2*. Sand blasted cotyledons**

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

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 poiont 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

2011 Research Reports

AgriLIFE EXTENSION
Texas A&M System

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 filed 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 distributers.

Results and Discussion:

<u>Jackson field:</u> 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).

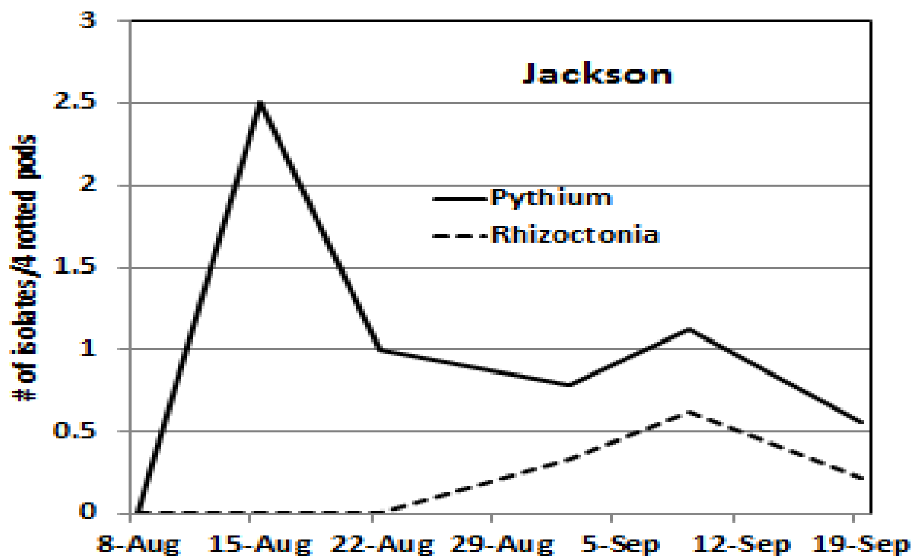


Figure 1. Number of isolations of *Pythium* and *Rhizoctonia* spp. at the Jackson field over time, when 4 or fewer rotted pods/sample were examined. Averaged across all fungicide treatments, since there were no differences between fungicide treatments.

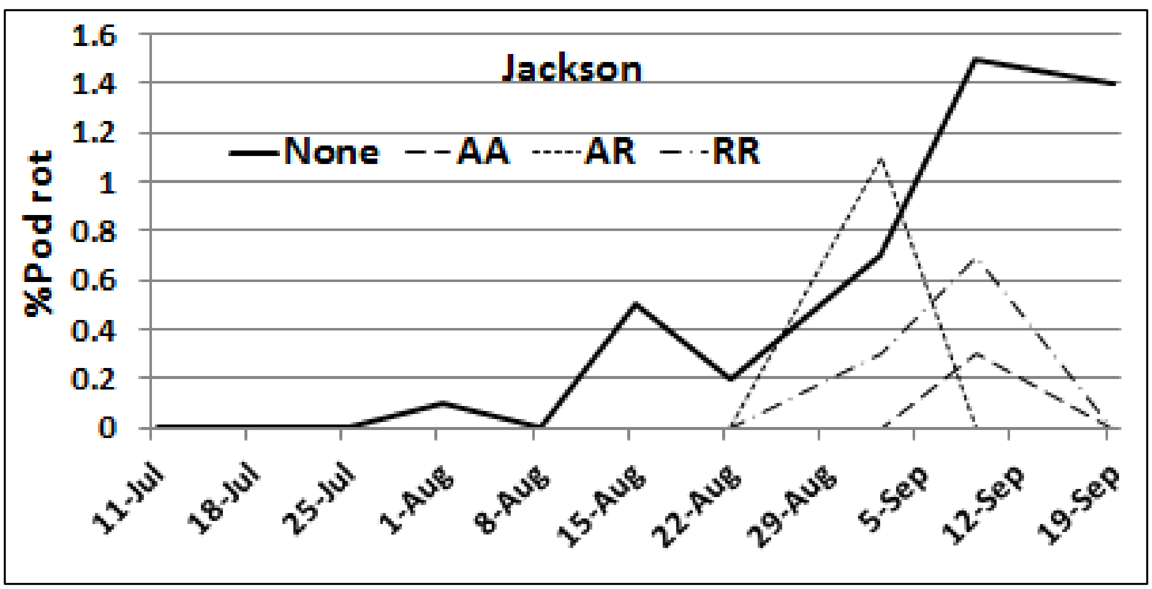


Figure 2. Percent pod rot over time for various fungicide application strategies at the Jackson field. None=no fungicides for pod rot applied; AA = 2 applications with Abound FL (calendar timed); AR = 1 application with Abound FL and one with Ridomil Gold SL + Provost (calendar timed); and RR = 2 applications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

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

Trt[1]	Yield Lbs/a	Value $/ton[2]	Value ($)/acre[2]	Minus Chem Costs ($/acre)[3]	Grade	% DK[2]	% ELK[2]	%Pod rot	Pyth[4]	Rhiz[4]
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

[1]A=Abound FL; RP = Ridomil Gold + Provost; Low=low threshold; None indicates no fungicides sprayed.
[2]Value/ton was calculated at ($4.947 x Grade)+($1.40 x %Other kernels)+($0.35 x %Extra large kernels (ELK)) – deduction from damaged kernels (DK). Value/acre was calculated by multiplying value/ton x the number of tons/acre.
[3]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.
[4]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[1]	Yield Lbs/a	Value[2]	Value[2] ($)/a	Minus[3] Chem Costs ($/a)	Grade	% DK[2]	Ded[2] DK ($/ton)	% Pod Rot	Pyt[4]	Rhiz[4]
A	3,474	353 a[5]	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

[1]A=Abound FL; RP = Ridomil Gold + Provost; Low=low threshold; None indicates no fungicides sprayed.
[2]Value/ton was calculated at ($4.85 x Grade)+($1.40 x %Other kernels) – deduction from damaged kernels (DK) and sound splits. Value/acre was calculated by multiplying value/ton x the number of tons/acre.
[3]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.
[4]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.
[5]Differences between treatments that are significant at a Probability ≤0.05 have different letters.

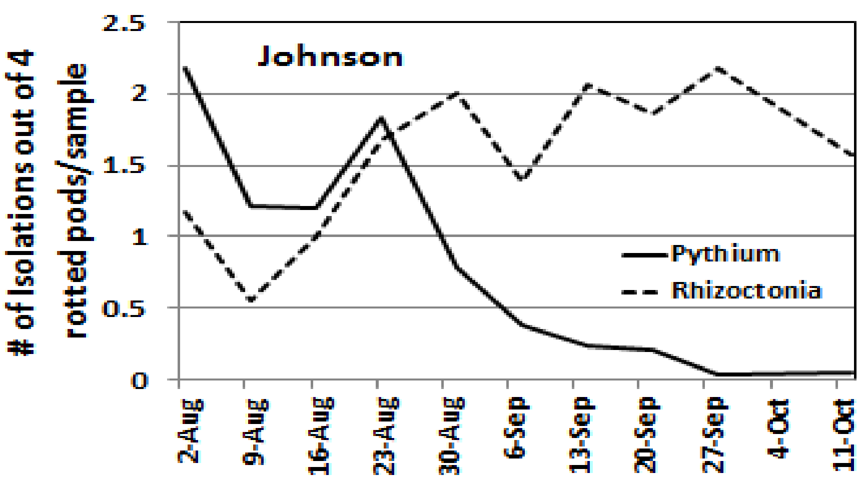


Figure 3. Number of isolations of *Pythium* and *Rhizoctonia* spp. at the Johnson field over time, when 4 or fewer rotted pods/sample were examined.

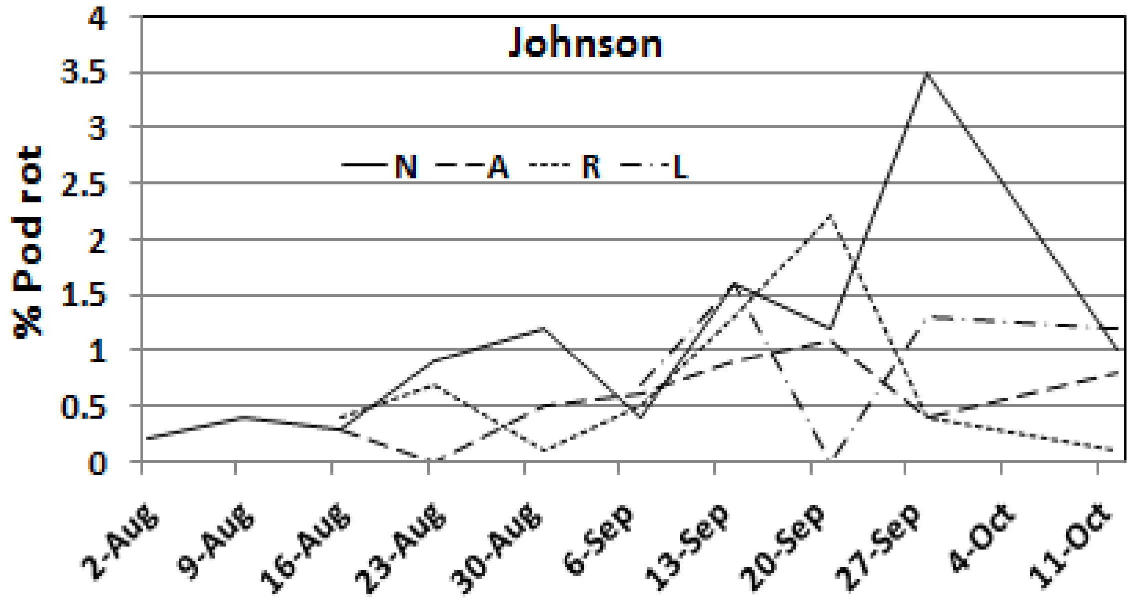


Figure 4. Percent pod rot over time for various fungicide application strategies at the Johnson field. N=no fungicides for pod rot applied; A = 1 application with Abound FL (calendar timed); R = 1 application with Ridomil Gold SL + Provost (calendar timed); L = 2 applications with Abound FL timed when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

AgriLIFE EXTENSION
Texas A&M System

Agriculture and Natural Resources

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: http://www.plainscotton.org/Seed/PCGseed10.xls

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^{nds} 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 signficance at the 0.10 level.

Agriculture and Natural Resources

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^{nds} 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.

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

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

LSD - least significant difference at the 0.05 level.

AgriLIFE EXTENSION
Texas A&M System

Agriculture and Natural Resources

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^3 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^3 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[1] 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.* Galling 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^3 soil on 12 July by variety*.

Variety	Average No. of root-knot nematode eggs
FM 9180B2RF	7800 a
ST 4288B2RF	4720 b
	P = 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 2nd 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

Dr. Terry Wheeler, Research Plant Pathologist – Lubbock
Kerry Siders, Extension Agent – IPM, Hockley & Cochran Counties
Manda Anderson, Extension Agent – IPM, Gaines County
Dr. Jason Woodward, Extension Plant Pathologist – Lubbock

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
Planting date: 9 May; replanted 31 May

Date Vydate C-LV was applied: 22 June
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

Treatment	Treatment
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

Treatment	Cost
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^3 soil) relative to that of the susceptible variety FM 9160B2F (23,777 root-knot/500 cm^3 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 overally 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[1]	Galls/ Root	RK[2]/500 cm^3 soil	Yield Lbs of lint/acre		Yield x Loan value[4] -(Chemical+Variety Costs ($/sacre))	
			FM[3]	ST	FM	ST
None	13.8 a	17,385 a	835 abZ[5]	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

[1]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.
[2]RK is root-knot nematode, sampled on 22 August.
[3]FM is FIbermax 9160B2F and ST is Stoneville 5458B2F.
[4]Loan value was increased by $35/lb to reflect current prices more accurately.
[5]The letters a,b,c were used to indicate which chemical treatments were significantly different ($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^3 soil and PHY 367WRF averaged 4,264 root-knot/500 cm^3 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[1]	Plants/ Ft. row	Galls/ Root	RK[2]/500 cm³ soil	Yield Lbs of lint/acre		Yield x Loan value[4] -(Chemical+Variety Costs ($/sacre))		
				FM[3]	PHY	FM	PHY	Average
None	2.25 ab[5]	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

[1]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.
[2]RK is root-knot nematode, sampled on 22 August.
[3]FM is FIbermax 9160B2F and PHY is Phytogen 367WRF.
[4]Loan value was increased by $35/lb to reflect current prices more accurately.
[5]The letters a,b,c were used to indicate which chemical treatments were significantly different ($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

Orr, C.C., and A. F. Robinson. 1984. Assessment of losses in western Texas caused by *Meloidogyne incognita*. Plant Disease 68:284-285.

Starr, J. L., C. M. Heald, A. F. Robinson, R. G. Smith, and J. P. Krause. 1993. *Meloidogyne incognita* and *Rotylenchulus reniformis* and associated soil textures from some cotton production areas of Texas. Suppl. J. Nematol. 25:895-899.

Wheeler, T. A., K. D. Hake, and J. K. Dever. 2000. Survey of *Meloidogyne incognita* and *Thielaviopsis basicola*: Their impact on cotton fruiting and producer's management choices in infested fields. Suppl. To the Journal of Nematology 32(4S):576-583.

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: http://www.plainscotton.org/Seed/PCGseed10.xls

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^{nds} 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: Cheuvront 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 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 36 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 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 perameter 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 signficant 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 signficant 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, Cheuvront Farms, Seminole, TX, 2011.

Variety	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b
	units	32nds 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^{nds} 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 and Jacob Froese, Producers

**David Kerns, Manda Cattaneo, Brant Baugh, Dustin Patman and Scott Russell
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, *Heliocoverpa 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_2 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:

This project was funded in part by DuPont, Dow AgroScience, Bayer CropScience, Syngenta 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. Insecticide treatments and rates. Loop, TX. 2010		
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
[all] *treatments included Dyne-Amic at 0.25% v/v*		

Table 2. Insecticide treatments and rates. Brownfield, TX. 2011		
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
[a]*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	Chlorantranilipyrole	27.0 fl-oz
4) Mustang Max 0.83 EC	Zeta-cypermethrin	3.6 fl-oz
[a]*No adjuvants included*		

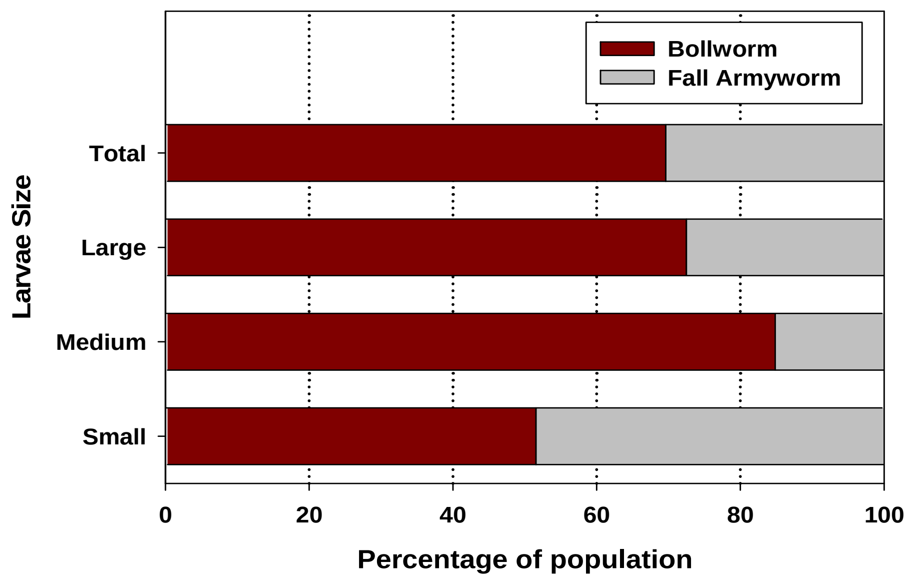


Figure 1. Percentage of population. Loop, TX 2010

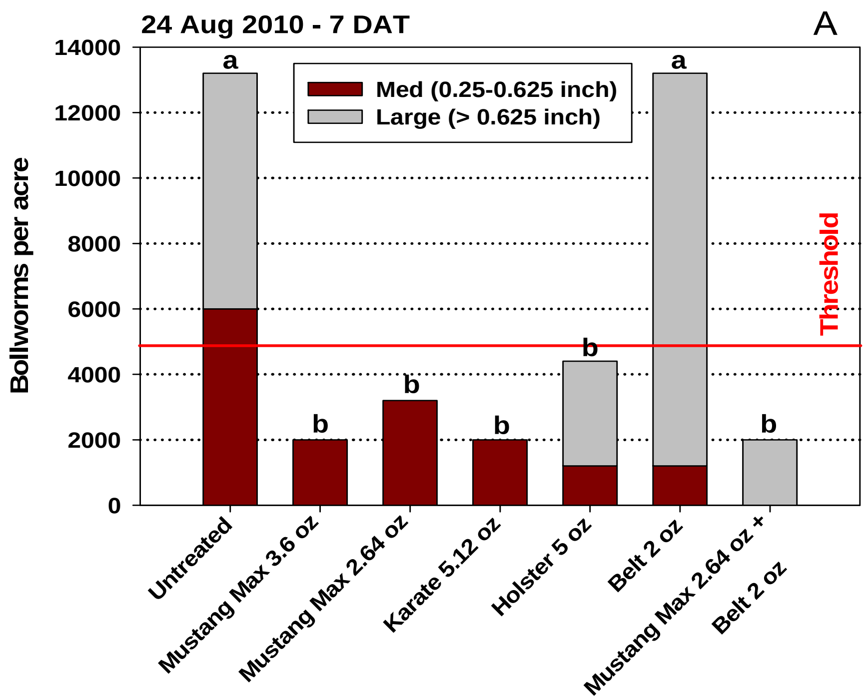


Figure 2. Number of bollworms per acre at 7-DAT. Loop, TX 2010. Bars capped the same letter are not significantly different.

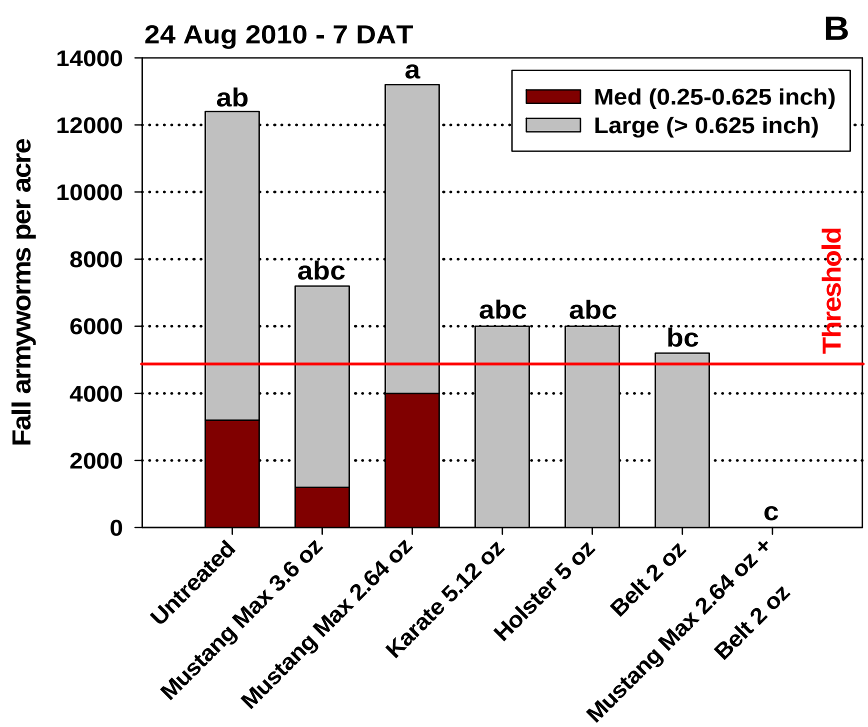


Figure 3. Number of fall armyworms at 7-DAT. Loop, TX 2010. Bars capped by the same letter are not significantly different

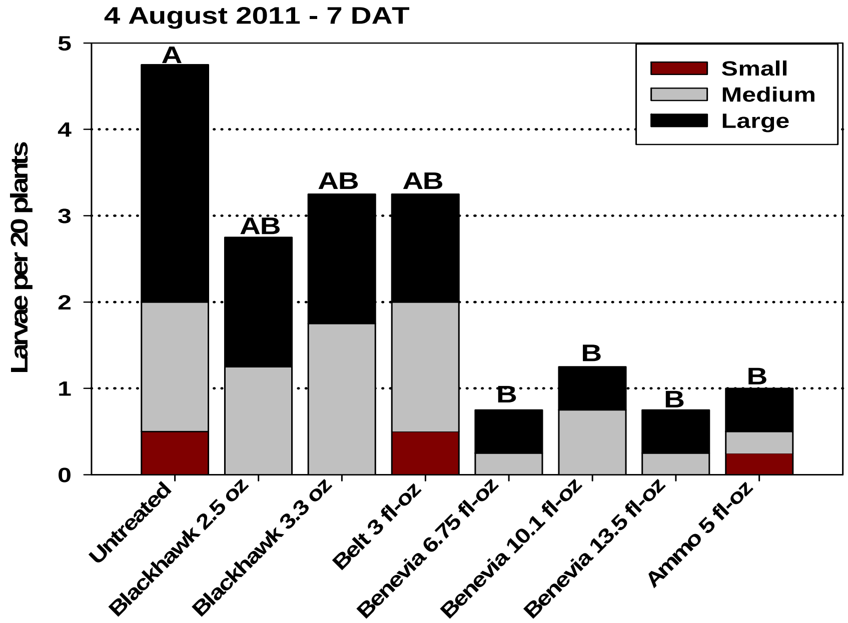


Figure 4. Number of larvae per 20 plants at 7-DAT. Brownfield, TX 2011. Bars capped by the same letter are not significantly different

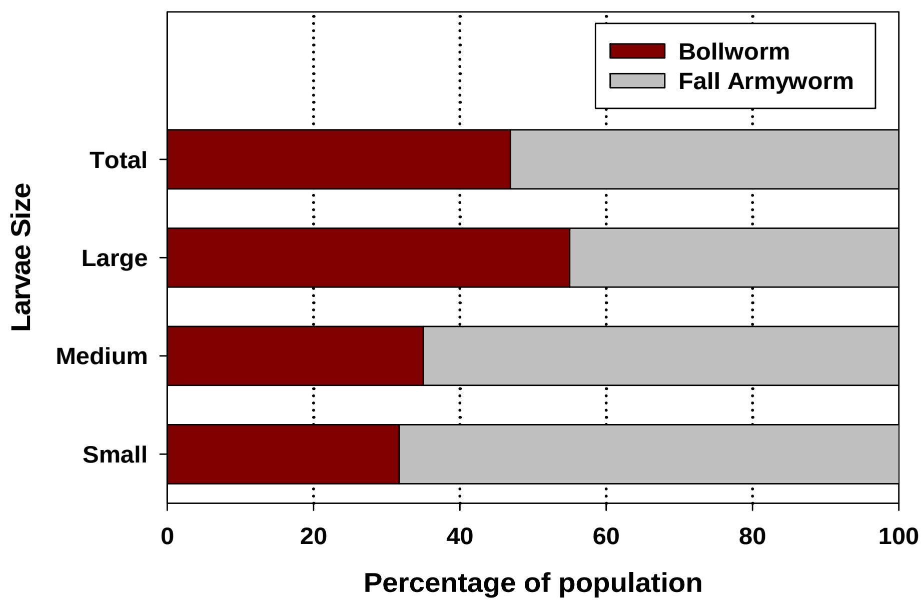


Figure 5. Percentage of population. Hobbs, NM 2011.

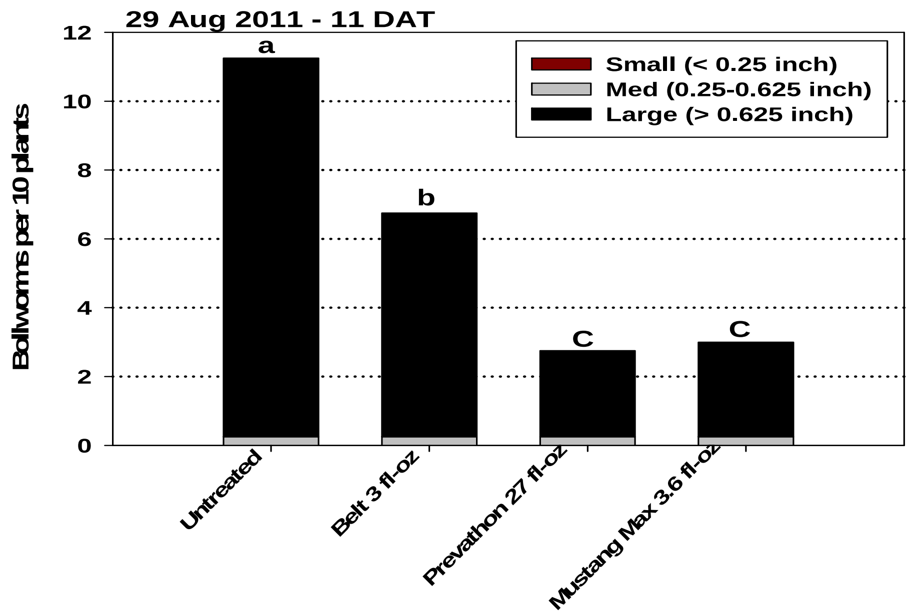


Figure 6. Number of bollworms per 10 plants at 7-DAT. Hobbs, NM 2011. Bars capped by the same letter are not significantly different.

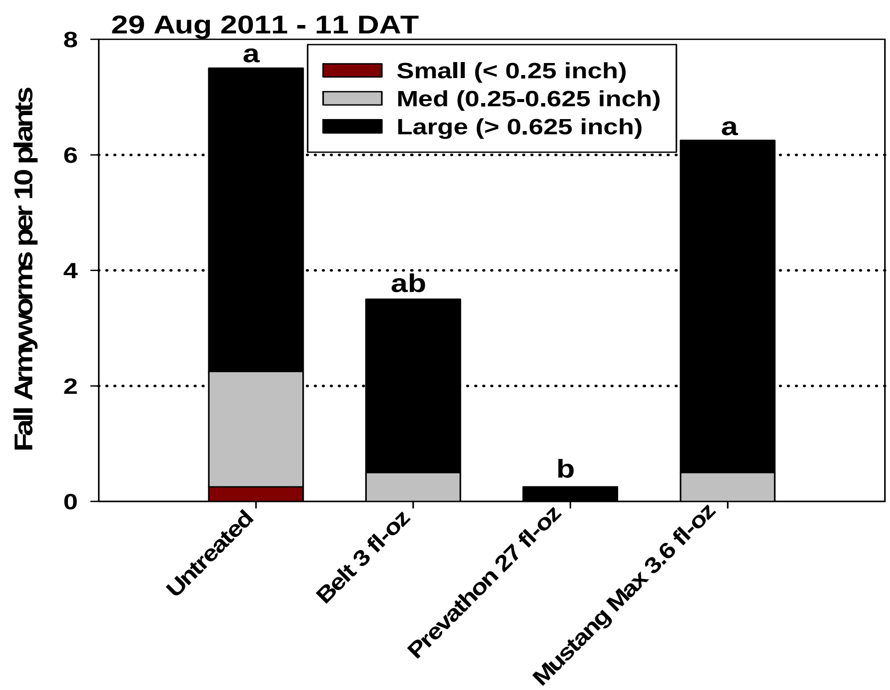


Figure 7. Number of fall armyworms per 10 plants at 7-DAT. Hobbs, NM 2011. Bars capped by the same letter are not significantly different.

AgriLIFE EXTENSION
Texas A&M System

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

Cooperators: Chuck Rowland, John Harms and Jacob Peters, Producers

David Kerns, Manda Anderson, Brant Baugh, Dustin Patman and Bo Kesey
Extension Entomologist-Cotton, EA-IPM Gaines County, EA-IPM Lubbock County, EA-IPM Crosby/Floyd Counties and Extension Program Specialist-Cotton

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 Kurtmathrips 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_2 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

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.

Test 1.

Treatment/ formulation	Rate amt product/acre	25 Jul (pre-treatment) immatures	adults	total	28 Jul (3 DAT) immatures	adults	total	1 Aug (7 DAT) immatures	adults	total	9 Aug (15 DAT) immatures	adults	total
		Thrips per 5 leaves											
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.

		Thrips per 10 leaves												7 Nov
	Rate amt	17 Aug (pre-treatment)			24 Aug (7 DAT)			30 Aug (12 DAT)			8 Sep (21 DAT)			Yield
Treatment/ formulation	product/acre	imm	adults	total	imm	adults	total	imm	adults	total	imm	adults	total	lint-lbs/ac
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	431.35d
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	454.27cd
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	675.92a-d
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	570.42bcd
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	727.05ab
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	712.88ab
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	766.93ab
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	859.01a
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	687.62abc

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

Test 3.

		Thrips per 10 leaves									10 Oct
		26 Aug (pre-treatment)			1 Sep (7 DAT)			8 Sep (14 DAT)			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* ≤ 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_2 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[a]	Rate amt product/acre	Mites per 20 leaves: 23 Jun (pre-treatment) eggs	larvae	adults	motiles	27 Jun (3 DAT) 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* ≤ 0.05).
[a]All treatments included Dyne-Amic non-ionic surfactant at 0.375% v/v.

Table 2.

Treatment/ formulation[a]	Rate amt product/acre	Mites per 20 leaves: 30 Jun (6 DAT)[a] eggs	larvae	adults	motiles	7 Jul (13 DAT)[a] 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* ≤ 0.05).
[a]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 Yoakun 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 gossyplure 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.).

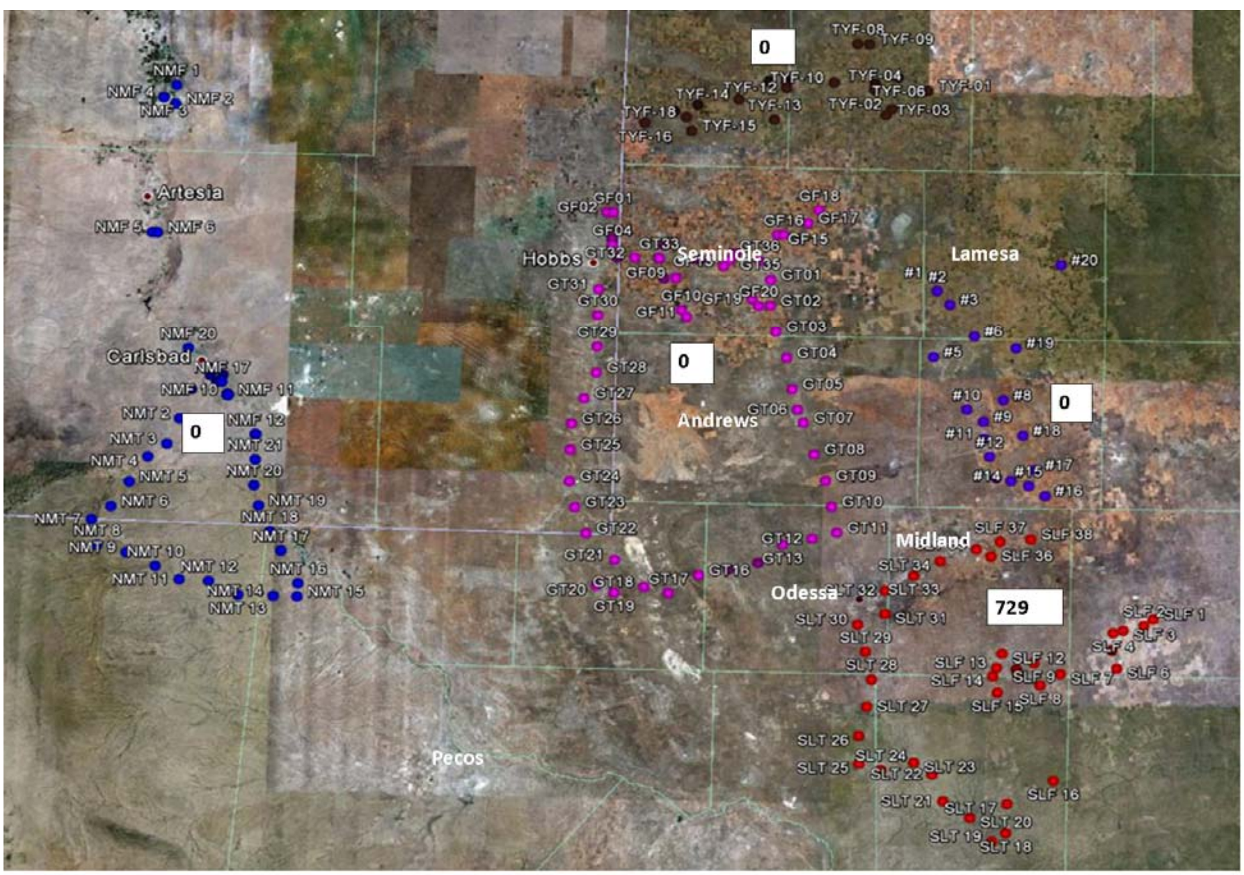


Figure 1. Southern Plains region of Texas and New Mexico showing pink bollworm trap locations and pink bollworm trap captures during the fall of 2011.

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 Figure1. 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.

Figure 2. Fall 2011 pink bollworm moth captures in Midland and Upton Counties.

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.

References

Grefenstette, B., O. El-Lissy, and R. T. Staten. 2008. Pink Bollworm Eradication Plan in the U.S. http://www.aphis.usda.gov/plant_health/plant_pest_info/cotton_pests/downloads/pbw-erad-plan2-08.pdf. 9 pp.

Multer, W., T. Doederlein, M. Anderson, J. Pierce, C. Allen, R. Zinc, M. Walters, D. Kerns and J. Westbrook. 2011. Pink bollworm trapping in the southern plains of Texas and New Mexico. *In* S. Boyd, M. Huffman and B. Robertson (eds.). Proc. Beltwide Cotton Conf. National Cotton Council, Memphis, TN. pp. 753-757.

National Cotton Council of America. 2001. Pink Bollworm Eradication: A Window of Opportunity, 1-6 pp.

AgriLIFE EXTENSION
Texas A&M System

Bayer CropScience Irrigated CAP Trial
Seminole, TX - 2011

Cooperator: Jud Cheuvront

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 Cheuvront Farms , Seminole, TX, 2011.

Variety	Lint Yield (lbs/A)	Yield Rank	Percent Turnout	Mic	Staple	Strength	Unif	Elong.	Color	Leaf	Loan Value (¢/lb)	Value / A ($/A)
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

AgriLIFE EXTENSION
Texas A&M System

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.

Variety	Lint Yield (lbs/A)	Yield Rank	Percent Turnout	Mic	Staple	Strength	Unif	Elong.	Color	Leaf	Loan Value (¢/lb)	Value / A ($/A)
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

AgriLIFE EXTENSION
Texas A&M System

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
TEST AVERAGE		**$ 847.41**	**1584**	**0.5349**	**34.8**	**1.09**	**28.3**	**5.0**	**41.8**	**81.8**

* 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.

Appendix A

2011 Gaines County IPM Newsletters

GAINES COUNTY IPM NEWSLETTER

Manda G. Anderson, Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)758-6669 office
(432)758-6662 fax

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

Volume IV, No. 1 March 14, 2011

Gaines County IPM Research Trials are Posted on the Web

The Gaines County IPM Research Reports and Texas AgriLife Research Cotton and Peanut Reports have been posted on the the Gaines County website. To view these results go to http://gaines-co.tamu.edu Click on the "Publications" tab and then click on the cotton or peanut links. Please let me know if you do not have access to the web and would like a hard copy.


Gaines County Extension Office March 14, 2011
Home Location Staff Events Newsletters Publications
Links
HOME > Publications > Cotton
Cotton
Click on the publication title below to view it:
All documents require Acrobat Reader to view them. Click HERE to download and install the FREE reader.
2010 Aphid Impact on Pre-Boom Dryland Cotton - Dr. David Kerns
2010 Boll Damage Survey of Bt and non-Bt Cotton Varieties
2010 Developing an Action Threshold for Thrips
2010 Diagnosis and Managment of Vascular Wilts - Dr. Woodward
2010 Gaines Co Irrigated Cotton Trial
2010 Gaines Controling Bollworm and Fall Armyworm in non-Bt Cotton
2010 Gaines Cotton Seeding Rate Trial
2010 Gaines Cotton Trial & Use of Vydate C-LV Under Nematode Pressure
2010 Gaines Cotton Trial Under Nematode Pressure without Temik
2010 Gaines Cotton Trial Under Verticillium Wilt Pressure
2010 Gaines Full & Limited Irrigated CottonTrial
2010 Gaines Variety Tolerance and Chemical Management of Nematodes
2010 Integrated Management of Verticillium Wilt
2010 Pink bollworm Trapping in Texas and New Mexico
2010 Verticilliu Wilt Trial Results - Dr. Wheeler & Dr. Woodward


Gaines County Extension Office
Home Location Staff Eve
Links
HOME > Publications > Peanuts
Peanuts
Click on the publication title below to view it:
All documents require Acrobat Reader to view them. Click HERE to downloa
2010 Runner Peanut Variety Trials - Dr. Baughman
2010 Runner Seeding Rate Trial - Dr. Baughman
2010 Sampling Protocol & Economic Threshold for
2010 Spanish Variety Trial - Dr. Trostle
2010 Valencia Peanut Trial - Dr. Trostle
2010 Virginia Peanut Variety Trials - Dr. Baughman
2010 Virginia Seeding Rate Trial - Dr. Baughman

Here is a snap-shot of the cotton and peanut WebPages.

March 4, 2011 Focus on South Plains Agriculture Newsletter

Below is a link to recent newsletter, Focus on South Plains Agriculture.
http://lubbock.tamu.edu/focus/focus_2011/March_4/March_4.pdf
This newsletter is full of great information on the following topics:

Cotton Insects
Research Report is available now
Choosing Bt or non-Bt cotton
Considerations for thrips control

Cotton Agronomy
Recap of 2010
Variety selection considerations
Deep soil sampling

Cotton Diseases
Summary of common diseases - with links to current research information

Cotton Weed Control
Roundup resistant weeds
Pre-season herbicide considerations

Corn Insects
Quick Summary of Bt corn refuge requirements

Non-cotton Agronomy
Wheat agronomy
Weed Control in Bermudagrass
Online access to labels

Please feel free to contact me if you do not have access to the web and would like a hard copy of this edition of Focus on South Plains Agriculture.

2011 Plains Cotton Growers Seed Cost Calculator Spreadsheet

This is a spreadsheet that will help you compared the cost of various cotton varieties. The spreadsheet can be downloaded from the following website http://plainscotton.org

Comparative Profitability Spreadsheet

This is a spreadsheet that will help you to quickly and accurately evaluate the relative profitability of all relevant crops. The spreadsheet can be downloaded from the following website
http://southplainsprofit.tamu.edu

Pesticide Applicator Training and Pesticide Handler Trainings

March 31, 2011 at the Lamesa Community Building (Womens Building- located on the corner of S. 8th & Houston)

- 8:00 a.m. - Registration Time
- 8:30 a.m. - Pesticide Applicator Training Start Time
- 9:00 a.m. - Pesticide Handler (Green Card) Training presented in English
- 10:00 a.m. - Pesticide Handler (Green Card) Training presented in Spanish
- 12:00 p.m. - Lunch on your own
- 1:00 p.m. - Test Time by a TDS Representative (no fee to test)

Persons planning on attending need to call the Texas AgriLife Extension Office, Dawson County Office, 806-872-3444, to make a reservation and order study materials. For more information concerning this training contact Jeff Wyatt, Texas AgriLife Extension, Dawson County, 806-872-3444 or your Texas AgriLife Extension County Agent.

GAINES COUNTY IPM NEWSLETTER

Manda G. Anderson, Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)758-6669 office
(432)758-6662 fax

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

Volume IV, No. 2 April 18, 2011

IPM Radio Program - Every Wednesday 12:30 to 2:00 on AM 950

As you are getting geared up for this season, be sure to tune in to the IPM Radio Program every Wednesday from 12:30 to 2:00 on AM 950. The Integrated Pest Management (IPM) Agents from Lubbock, Bailey, Parmer, Crosby, Floyd, Hockley, Cochran, Terry, Yoakum, Lynn, Dawson, and Gaines Counties discuss current pest pressures, crop stage and development, and upcoming meetings.

Alternatives to Temik Meeting ReCap

Here is a brief recap for those of you who were unable to attend the Alternatives to Temik Meeting that was held in Seminole on April 8. Dr. David Kerns (Extension Entomologist) and Dr. Jason Woodward (Extension Plant Pathologist) thoroughly discussed the use of insecticides for the management of thrips and nematicides for the management of the cotton root-knot nematode. I would highly recommend that you read the April 6, 2011 FOCUS on South Plains Agriculture Newsletter (http://lubbock.tamu.edu/focus/focus_2011/April_6/April_6.pdf), if you haven't already read it. This newsletter covers several of the topics that we discussed during the Alternatives to Temik Meeting.

There are a couple of extra points that I think need emphasizing. First off, one of the most important decisions you make this year will be the varieties that you select to plant. This is not saying that a variety will fix all your problems, but it will greatly increase your chances of having a profitable crop. Secondly, do all you can to make sure that those plants get to squaring as quickly as possible. This includes planting when we are forecasted to have a week or two of warm weather (or in other words don't plant when we have a cold front coming in). You may want to plant your tighter soils first and the sandier soils later. The sandier soils tend to have higher nematode populations and you want to hold off on these fields until we have as good of weather as possible so that the plants will jump out of the ground and get a good root system before the nematodes damage the root system. Thirdly, incorporate fertilizer prior to planting so that the plants have the nutrients they need in order to get off to a good start. Lastly, be sure and have foliar insecticides that you plan on using for thrips or nematodes in the barn ready to go. And scout your fields once or twice a week if possible so that you know what pests are present in your fields. This is crucial in the management of thrips. Don't wait until you see damage because you will likely be too late and you will end up making a revenge application instead of actually killing the pest that caused the damage.

Special Thanks to the following companies for sponsoring the Alternatives to Temik Meeting

Sesaco	Bayer CropScience	Dupont
Monsanto	All-Tex	Syngenta
Americot	Phytogen	Gowan USA

GAINES COUNTY IPM NEWSLETTER

Manda G. Anderson, Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)758-6669 office
(432)758-6662 fax

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

Volume IV, No. 3 May 20, 2011

Advise from a Wise Old Farmer

"A bumble bee is considerably faster than an open cab tractor"

"Timing has a lot to do with the outcome of a rain dance"

In times like this it is always good to smile, laugh, and be thankful for the good things in life.

General Situation

We have not received any significant rainfall since July of last year. A majority of the peanuts have been planted and have emerged. Growers are still busy planting cotton. Cotton stages range from just planted to 1 true leaf stage. As plants are emerging growers need to be out scouting their fields for thrips and other early season insect pests.

Damaged Cotton Seedlings

Figure 1. **Wireworm**

We are seeing damaged cotton seedlings in some fields. Birds and wireworms (*See Figure 1*) have been the main culprits. Control options are very limited for both of these pests after the cotton has been planted. However, differentiating between the two is important if you are considering a replant. Wireworm control has to be applied at planting.

Figure 2 shows some examples of the type of damage you may see associated with wireworm feeding on cotyledon stage cotton. Most of the time they will feed on several areas of the stem and they may not chew the stem completely in half. Dr. David Kerns, Extension Entomologist, has suggested the following "If you are facing replanting due to wireworms, you should consider using a seed treatment containing imidacloprid (Guacho 600, Aeris, generics), thiamethoxam (Cruiser, Avicta Complete) or clothiadan (Poncho/Votivo), or an in-furrow insecticide such as Thimet. Temik is not thought to be highly effective on wireworms."

Figure 2. **Wireworm feeding damage on stems**

Bird damage has also been observed in several fields. The birds are hanging out on the center pivot irrigation system and following the system around the circle. The birds are clipping the cotton seedlings as they are starting to crack through the soil (*See Figure 3*). Most of the time they slice completely through the stem and toss the cotyledon leaves to the side (*See Figures 4 & 5*). The birds usually dig holes in the soil as they are pecking around for the emerging seedlings.

***Figure 3*. Emergin cotton seedling that was partially clipped by a bird**

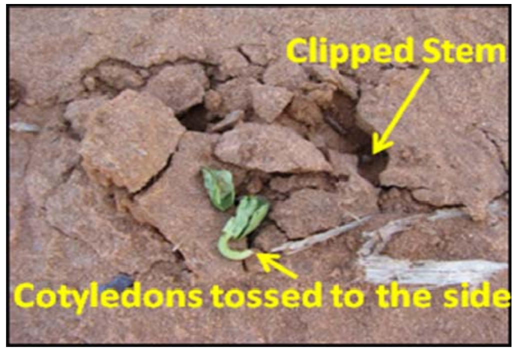


***Figure 4*. Clipped cotton stem and cotyledon leaves that were tossed to the side**

***Figure 5*. Birds disturbed the soil as the clipped off the cotyledon leaves and tossed them aside**

Special Thanks to the Gaines County TPMA Scouting Program Sponsors

Special Thanks to our Platinum Sponsors of $1000

Carter & Co. Irrigation Inc.
Oasis Gin Inc.
Tri County Producers Coop

Thanks to our Gold Sponsors of $750

West Texas AgriPlex

Thanks to our Silver Sponsors of $500

AG Aero
Doyle Fincher Farms
Five Points Gin
Golden Peanut Company
Western Peanut Growers
Wylie Implement

Thanks to our Bronze $250 Sponsors

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.

Thanks to our $100 Sponsors

State Farm Insurance

If you would like to become a sponsor of the 2011 Gaines County TPMA Scouting Program, please contact Manda Anderson at 432-788-0800 or by email at mganderson@ag.tamu.edu.

GAINES COUNTY IPM NEWSLETTER

Manda G. Anderson
Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)788-0800 cell

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

Volume IV, No. 4 June 10, 2011

General Situation

Cotton stages range from seed in the ground to squaring, with a majority of the cotton sitting at 2-4 true leaves. It has been a hard year to get a stand established or keep a stand established due to the soil drying out before the pivot can get around the field. Some growers have had to replant their fields due to the wind damage and droughty conditions that resulted in poor emergence. *Figure 1* shows some of the damage that resulted from the May 24 wind storm. Growers need to be sure to differentiate between sand blasted cotton and thrips damage.

***Figure 1*. Sand blasted cotyledons**

Peanuts are struggling due to the windy dry conditions as well. However, they seem to be holding up a little better than the cotton. We are starting to see a few blooms in the fields.

Thrips

Thrips damage has been relatively light this year. We have received a few reports of fields that have reached treatable levels. The effectiveness of a thrips application all depends on the timing of the application. Make sure that the thrips are still present before you apply the thrips insecticide. Otherwise, the insecticide application will be nothing more than an expensive revenge treatment. The current action threshold is one thrips per true leaf through the fifth true leaf stage.

***Figure 2*. Curled leaves due to thrips feeding on the leaves**

Spider mites

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. Spider mites infest the undersides of leaves (see *Figure 3*), where they remove the sap from the plant and cause the leaves to discolor (see *Figure 4*). Spider mite infestations most often occur in spots and along the edge of the field. Therefore, you may only have to treat the infested areas of a field if a miticide application is justified. There is no action threshold for spider mites in pre-squaring cotton. Therefore, growers will have to evaluate it on a field by field basis. Be sure to note the extent of the damage and monitor how quickly the population is developing. Low humidity and dry conditions are optimal for spider mite reproduction.

***Figure 4.* Spidermites on the underside of a leaf**

***Figure 3.* Discolored leaf resulting from spidermite feeding on the underside of the leaf**

Root-knot Nematodes

Root-knot Nematodes have already started to take their toll on cotton. We have observed stunting association with root-knot nematode infestations. *Figure 5* shows some stunted plants and *Figure 6* is the roots of the stunted plants. If you look closely you can see the nematode galls on the roots. I have had a few people who have commented on the fact that they are seeing nematode damage in fields that were planted to a tolerant variety like PHY 367WRF, ST 5458B2RF, or DP 174RF. Even though these varieties are more tolerant to nematodes, they are not resistant. Therefore, they will still sustain some damage. However, the damage is likely to be less severe than if the field had been planted to a susceptible variety. The thing to do at this point is to give those plants all they need in order to reduce the amount of stress on the plants. I know this is a lot harder to do this year since we are in a major drought. Additonally, several growers have started their Vydate C-LV applications. Remember that the product has to be absorbed through the leaves, therefore any product that is sprayed on the ground is unlikely to have any impact on nematodes. Therefore, growers may consider banding on their applications since the plants are still relatively small.

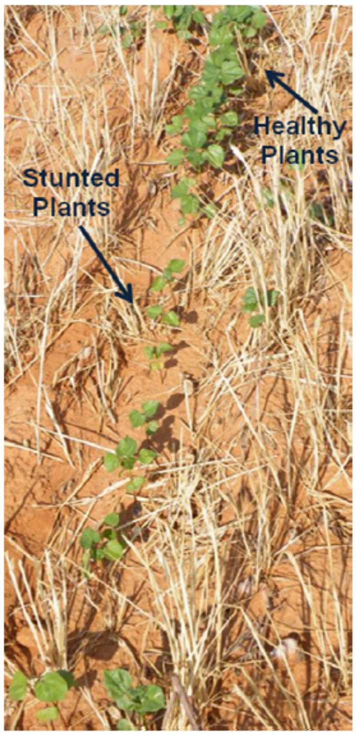


Figure 5. Stunted plants due to root-knot nematode infestation

Figure 6. Root-knot nematode galls on the stunted plants' roots

Weeds

A majority of the damage we have observed has been caused by blowing sand, droughty conditions and weed competition. Weeds are one of our biggest pests at this time. I have seen several fields that have stunted plants and plants that are struggling due to weed competition. The low humidity and drought has made weed control more difficult. Therefore the weeds are competing with the crop for the little bit of moisture that is in the soil. Timely applications of herbicides are the most effective. If possible, make sure that the conditions are more conducive for the weeds to take up the herbicide. Weeds that are drought stricken and not actively growing are less likely to take up the herbicide.

Rhizobium Nodulation in Peanuts

We have observed a few fields with low nodulation levels. Below is a chart that can be used to rate your nodulation levels at 5 to 6 weeks after planting. If early nodulation is good, you can expect it to continue to increase toward peak nodulation (usually August), but if early nodulation is poor it probably isn't going to improve. Minimal or nonexistent *Rhizobium* nodulation points toward the need for supplemental N to achieve desired yields.

Table 1. Early season Rhizobium nodulation rating for peanuts.

Nodules per Plant	Early Season Nodulation Rating	Management Consideration
More than 20	Excellent	This field will likely have excellent late-season nodulation. Therefore, a response from supplemental (mid-season) nitrogen is doubtful.
16 to 20	Very Good	Late-Season nodulation should also be strong. Therefore, you should reduce your mid-season nitrogen application.
11 to 15	Good	Will produce a good crop but may consider some reduction in your mid-season nitrogen application.
6 to 10	Fair	We would like to see higher nodulation than this. Therefore, a mid-season nitrogen application is a good bet.
Less than 5	Poor	These nodules may be from Rhizobium that are not specific for peanuts. A mid-season nitrogen application is essential. Try to determine why the nodulation was poor in this field.

Special Thanks to the Gaines County TPMA Scouting Program Sponsors

Special Thanks to our Platinum Sponsors of $1000

Carter & Co. Irrigation Inc.
Oasis Gin Inc.
Tri County Producers Coop

Thanks to our Gold Sponsors of $750

West Texas AgriPlex

Thanks to our Silver Sponsors of $500

AG Aero
Doyle Fincher Farms
Five Points Gin
Golden Peanut Company
Western Peanut Growers
Wylie Implement

Thanks to our Bronze $250 Sponsors

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.

Thanks to our $100 Sponsors

McKinzie Insurance
State Farm Insurance

If you would like to become a sponsor of the 2011 Gaines County TPMA Scouting Program, please contact Manda Anderson at 432-788-0800 or by email at mganderson@ag.tamu.edu.

GAINES COUNTY IPM NEWSLETTER

Manda G. Anderson
Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)788-0800 cell

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

Volume IV, No. 5 June 17, 2011

General Situation

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 is very rare that you walk into a field that doesn't have any wind damage. Cotton stages range 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 has accumulated 608 H.U. However, not all of this cotton is squaring due to the excessive drought, wind storms, plants unable to cool themselves, the pivot unable to keep up with the water demands, and the extreme temperatures. The plant becomes less efficient at utilizing H.U. under hot conditions when moisture is limited (See section on Cotton Physiology below).

Table 1. **Accumulated Heat Units (H.U.) since April 25, May 1, May 15, and June 1 for 2009, 2010, & 2011.**

Year	Acc. H.U. Since April 25	Acc. H.U. Since May 1	Acc. H.U. Since May 15	Acc. H.U. Since June 1
2009	628	565	410	255
2010	667	644	561	337
2011	746	712	608	350

Spider mites in cotton and peanuts

Spider mite populations may be on the decline. Last week I reported that we found a cotton field northwest of Seagraves that had a heavy spider mite infestation. We looked at the field again on Wednesday of this week and the spider mite population had declined. Additionally, we found a peanut field this week that had significant spider mite damage, however, we found on average 0-1 spider mites per leaf. This leads me to believe that the spider mite population was heavy at one time (which is what caused the significant damage), but the spider mite population has already dropped off.

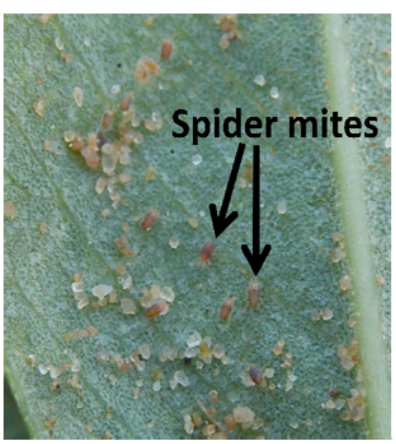


Figure 1. **Spider mites on the underside of a peanut leaf**

Figure 2. **Early stages of spider mite damage on peanuts**

Figure 3. **Severe damage caused by spider mite feeding**

Root-knot Nematodes Reproduction

Last week in my newsletter I mentioned how root-knot nematode damage is likely to be less severe in a tolerant/resistant variety compared to a susceptible variety. The reason for this reduction in severity is due to the plant's resistance limiting nematode reproduction. This can be seen in the table below.

***Table 2.* Root-knot Nematode/500cc soil and six different nematode variety trial sites**

Variety	2009 Lamesa Dr. Wheeler	2009 Seminole M. Anderson	2010 Spade Dr. Wheeler	2010 Whiteface Dr. Wheeler	2010 Lamesa Dr. Wheeler	2010 Seminole M.Anderson
DP 174RF	305	4,035	913	1,555	690	560
PHY 367WRF	600	-	1,134	1,380	488	525
ST 4288B2F	1,110	-	1,403	520	265	0
ST 5458B2RF	3,945	8,640	1,989	2,905	535	260
Average per test site	**7,332**	**8,718**	**2,805**	**3,323**	**1,552**	**635**

The first column has four of the varieties known to have partial resistance to root-knot nematodes. Each succeeding column represents a nematode variety trial site. The number of root-knot nematodes/soil sample is indicated. For example, at the 2009 Lamesa trial site DP 174RF had 305 nematodes/soil sample, PHY 367WRF had 600 nematodes/soil sample, ST 4288B2RF had 1,100 nematodes/soil sample, and ST 5458B2Rf had 3,945 nematodes/soil sample. The average number of nematodes/soil sample for all the varieties in the trial was 7,332. Therefore, there was greater than a 50% reduction in nematode reproduction with these varieties as compared to some of the other varieties in the trial.

The reduction in nematode reproduction will not only benefit you this year, but it will also benefit you the following year. Next year, there will likely be a lower number of nematodes at the beginning of the season. Therefore, there will be less nematodes to infest roots early in the season. Ideally, we would hope that repetitive use of resistant varieties year after year would continue to decrease nematode populations on a yearly basis and eventually reach a point that nematodes are not a yield limiting factor.

There are other varieties currently on the market that have shown some tolerance or resistance to root-knot nematodes. These varieties will likely limit nematode reproduction as well.

Vydate Applications

I have also had people ask me about the effectiveness of Vydate being applied during the afternoon heat. Essentially, the same conditions apply to Vydate applications as to when you are applying Roundup. The heat, low humidity, wind, and leaves covered with fine dirt will all likely reduce the effectiveness of Vydate applications. However, to my knowledge there has not been any research to say at what point Vydate applications become less effective. Therefore, my best assumption is to apply Vydate before we reach 100 degrees. If possible apply Vydate to areas of the field where the pivot has just passed and washed off the leaves. In the June 17 edition of Focus on South Plains Agriculture http://lubbock.tamu.edu/focus Dr. Jason Woodward notes that "spray equipment should be configured to produce large droplets when applying Vydate in hot and dry conditions. This will help minimize the effects of evaporation."

Cotton Physiology
(From the Cotton Physiology Today Newsletter, July 1990, Vol. 1, No.10)

Air temperature is important, but so also is sunlight, soil moisture, relative humidity, and air movement. Plants attempt to regulate their tissue temperature, just like warm blooded animals. Although cotton can only cool itself, not heat itself. Cotton attempts to keep its plant tissue temperature between 74 and 90, in the optimum range for growth and photosynthesis. It accomplishes this by opening stomates in the leaves allowing water to evaporate when the air temperature and sunlight heats up the plants. Thus during a hot dry afternoon, well-watered cotton plants are often 10 degrees cooler than the air temperature. Over 99.9% of the water taken up by plants is used to evaporatively cool the plant.

Living organisms, such as plants, contain individual sacks of chemical soup, called cells. The chemicals in the soup combine and rearrange to support growth and maintain their organized state. Temperature is the driving force that allows the chemicals in this soup to react. The warmer the temperature the faster they react, until the temperature gets so warm that the cells start to leak and basic materials such as enzymes start to degrade.

Whether high daytime temperatures increases or decreases yield depends on the availability of soil moisture and the stage of crop development. When the maximum air temperatures are near 100, it's a good bet that most of the daylight hours are favorable for rapid growth, if the plant has sufficient moisture to cool itself. Without adequate moisture, high air temperatures during the day have the inverse effect; they decrease yield. The damaging effect is most severe on cotton in bloom. When hot temperatures occur prior to bloom or after boll set, yield is often increased. Hot temperatures prebloom speed the arrival of the bloom period and occur at a time when water use is low and the root system is still expanding into fresh soil moisture. Hot temperatures after boll set hasten the maturation and opening of the crop.

Special Thanks to the Gaines County TPMA Scouting Program Sponsors

Special Thanks to our Platinum Sponsors of $1000

Carter & Co. Irrigation Inc.
Oasis Gin Inc.
Tri County Producers Coop

Thanks to our Gold Sponsors of $750

West Texas AgriPlex

Thanks to our Silver Sponsors of $500

AG Aero
Doyle Fincher Farms
Five Points Gin
Golden Peanut Company
Western Peanut Growers
Wylie Implement

Thanks to our Bronze $250 Sponsors

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.

Thanks to our $100 Sponsors

McKinzie Insurance
State Farm Insurance

GAINES COUNTY IPM NEWSLETTER

Manda G. Anderson
Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)788-0800 cell

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

Volume IV, No. 6 June 30, 2011

General Situation

The hot dry windy weather has continued. Water demands are going to increase as cotton and peanuts start to bloom. Cotton stages range 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 are short and have shortened internodes due to the compounding stresses that the plants have been under since emergence. Fruit size also seems to be smaller than usual and developing at a slower pace. The earlier planted cotton fields should start blooming next week. I will not be surprised if we see some fields start blooming at 5 nodes above white flower (NAWF). If this is the case, then the fields will be considered to be cutout at first bloom. Once cutout occurs, growth and flowering will decline and most of the carbohydrates produced by the plant will be committed to boll development.

With all of that being said, there are some irrigated cotton fields that look good. These fields will likely start blooming at 7 or more nodes above white flower. These fields likely have a larger irrigating capacity and/or have a thicker wheat or rye cover crop that reduce wind damage.

The June 30 issue of FOCUS on South Plains Agriculture addresses irrigation management questions. The newsletter can be found on the web at http://lubbock.tamu.edu/focus/focus_2011/June_30/June_30.pdf

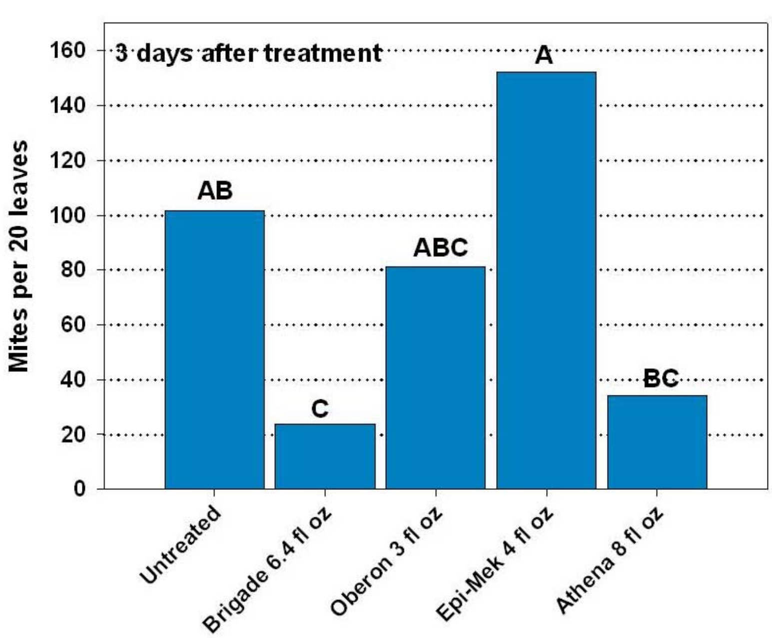
Peanuts are blooming, starting to set pegs and we have also seen a few small pods. Be sure to check Rhizobium nodulation on your peanuts. Six to ten nodules per plant is considered fair and we would like to see higher nodulation than this. Therefore, a mid-season nitrogen application is a good bet. Eleven to fifteen nodules per plant is considered good and will produce a good crop, so you may consider some reduction in your mid-season nitrogen application.
The latest edition of Peanut Progress Newsletter can be found at http://peanut.tamu.edu/library/pdf/2011%20Newsletter02.pdf

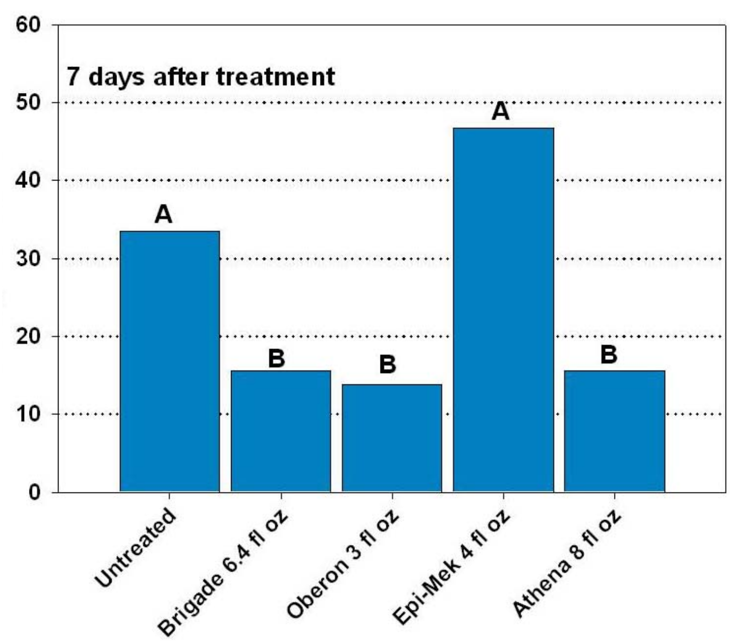
Pest populations remain very low at this point. The hot dry weather seems to be our biggest persistent pest. Nematode damage roots and stunted plants continue to be seen in several fields. We are also seeing light populations of spider mites and leaf miners.

Spider mites

Spider mites are still present in some fields at very low levels. Stippling can be seen on the topsides of infested leaves and spider mite webbing is found on the underside of these leaves. This pest likes dry dusty conditions. The worst populations are along the edges of the field where dust is covering the leaf surfaces. To my knowledge there have not been any fields treated in Gaines County. However, we are keeping an eye on a couple of fields that have had light spider mite populations for the last couple of weeks. The heavier populations seem to be north of our county.

Dr. David Kerns (Extension Entomologist) and several IPM Agents, including myself, worked together to put out a spider mite miticide trial near Welch, TX on June 24, 2011. We are evaluating Brigade (bifenthrin) at 6.4 fl oz/ac, Oberon (spiromesifen) at 3 fl oz/ac, Epi-Mek (abamectin) at 4 fl oz/ac, and Athena (abamectin + bifenthrin) at 8 fl oz/ac. All of these treatments included Dyne-Amic non-ionic surfactant at 3 pt/100 gal and were sprayed at 15 gallons per acre early in the morning. Below is the post-treatment counts at 3 and 7 days after the miticides where applied. Brigade was the only product that was significantly different than the untreated check at 3 days after treatment. All of the products, except Epi-Mek, where significantly different than the untreated check at 7 days after treatment. However, 8 fl oz of Epi-Mek looks very good late season. Dr. David Kerns also reported that Bidrin XP (Bidrin + Brigade mix) at 1 duo-container per 25 acre looked good in a growers field at 3 days after treatment. Coverage is going to be a key factor in all miticide applications due the amount of dust and webbing covering infested leaves. Dr. David Kerns has suggested that growers increase spray volume to at least 15 gallons per acre and to include a non-ionic surfactant and to apply them in the early morning or evening when evaporation will be reduced.





Special Thanks to the Gaines County TPMA Scouting Program Sponsors

Special Thanks to our Platinum Sponsors of $1000

Carter & Co. Irrigation Inc.
Oasis Gin Inc.
Ocho Gin Company
Tri County Producers Coop

Thanks to our Gold Sponsors of $750

West Texas AgriPlex

Thanks to our Silver Sponsors of $500

AG Aero
Doyle Fincher Farms
Five Points Gin
Golden Peanut Company
Ocho Corp. Crop Plus Insurance Agency
Western Peanut Growers
Wylie Implement

Thanks to our Bronze $250 Sponsors

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.

Thanks to our $100 Sponsors

Commercial State Bank
McKinzie Insurance
State Farm Insurance

GAINES COUNTY IPM NEWSLETTER

Manda G. Anderson
Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)788-0800 cell

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

Volume IV, No. 7 July 15, 2011

General Situation

Tuesday and Wednesday (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 occurred between June 27 and July 12, **2010**. So as you probably guessed, this week's showers didn't make a dent in our drought. Cotton stages range from 6 true leaves on replanted cotton to blooming. Square set is ranging from 90 to 100%. Blooming cotton is ranging from 5 to 11 Nodes Above White Flower (NAWF), with several fields at 7 NAWF. Those fields which started blooming at 5 NAWF are considered cutout and most of the carbohydrates produced by the plant from here on out will be committed to boll development. At this point lack of rainfall and 100+ degree weather is the major contributing factors to a reduction in plant growth (stunted plants & reduced canopy) and production (small fruit).

Most peanuts are blooming and some fields have pegs and small pods. However, overall there are significantly fewer pegs and pods as compared to last year at this time. The high temperatures, drought, and low humidity have reduced the plants ability to set pegs. Water demand is going to increase with both cotton and peanuts blooming and setting cotton bolls and peanut pods. Irrigation will have a hard time keeping up with the plants demands.

What does this mean for local producers? Producers are going to be faced with some hard decisions. The high water demands, depleted sub soil moisture, and continued hot dry weather will likely force some producers to consider diverting irrigation in hopes of salvaging at least some of their crops. Producers will have to decide which field has the highest likelihood of surviving the drought, if they have the ability to divert water from one field to another field. **Be sure to contact your insurance agent before you make any of these decisions.**

As of July 10, the FSA is reporting there was 170,676 acres planted to irrigated cotton and 18,408 acres have been failed. To my knowledge there are no dry-land fields that have emerged.

We found a few small bollworms in our peanut fields this week. This light population will not cause any economic damage to our peanut fields. Other than the occasional spider mite populations, no insects or diseases of any significant level have been found in peanuts or cotton.

Charcoal Rot in Cotton

Adding insult to injury…the hot dry weather and water stress has 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 charcoal rot is wilting of plants, followed by chlorosis and shedding of the leaves and death of the seedling or plant. A gray lesion may be seed spreading up from the root and crown to the stem. Infection takes place either via the cotyledons, as they emerge through the soil, or the taproot and crown. The pathogen may infect the plant early, resulting in preemergence or postemergence seedling mortality, or it may remain latent until the plant is predisposed to symptom development by the onset of senescence or drought-related stress. (*This description was obtained from the Compendium of Cotton Diseases, Second edition 2001, edited by T.L. Kirkpatrick and C.S. Rothrock*)

There are not fungicides labeled for the control of Charcoal rot. The infected plants look similar to Fusarium wilt. Therefore, proper diagnose is important. Please give me a call if you have a field that you suspect may have charcoal rot.

***Figure 1*. Gray lesion spreading up from the root to the stem**

***Figure 2*. Plants that have died after being infected with charcoal rot**

Mark Your Calendars – Upcoming meeting

The Texas AgriLife Extension Service will host a Multi-County series of 3 meetings on Tuesday, July 26, 2011 that will focus on area crops in relation to current drought conditions. This program series is designed so that producers may attend any or all of the 3 series of meetings.

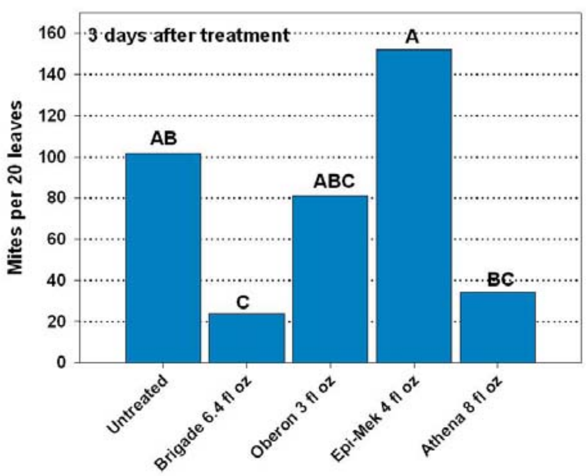
The annual Peanut Field Day will begin at the Gaines County Civic Building located at 402 N. W. 5th Street, Seminole, Texas. Registration will begin at 9:00 a.m. with the tour to area fields departing at 9:15 a.m. Dr. Jason E. Woodward - Plant Pathologist for Texas AgriLife Extension, Dr. Calvin Trostle -Texas AgriLife Extension Agronomist, Dr. Todd Baughman - Texas AgriLife Extension Agronomist, Manda Anderson - Texas AgriLife Extension IPM Agent, and Terry Millican - Texas AgriLife Extension Agriculture Agent, as well as peanut and cotton industry representatives will be present to discuss peanut and cotton production practices including irrigation management, disease management, weed control, fertilization, and chemical use, etc..... The Program will conclude with a lunch at the Gaines County Civic Building. Individuals with pesticide applicators licenses will be awarded three (3) general Continuing Education Units (CEU's) for attending this program.

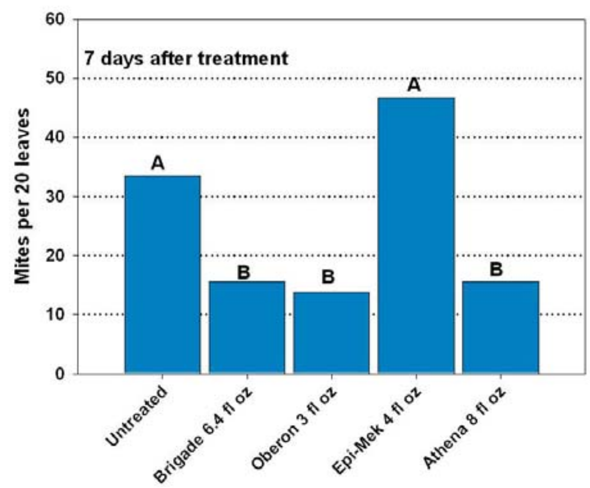
A Wheat Production meeting will be 2nd on the agenda and will be held immediately following the Peanut Field Day at the Gaines County Civic Building at 1:00 p.m. Dr. Calvin Trostle will present the program which will focus on wheat production for both forage and grain. Individuals with pesticide applicators licenses will be awarded one (1) general Continuing Education Unit (CEU) for attending this program.

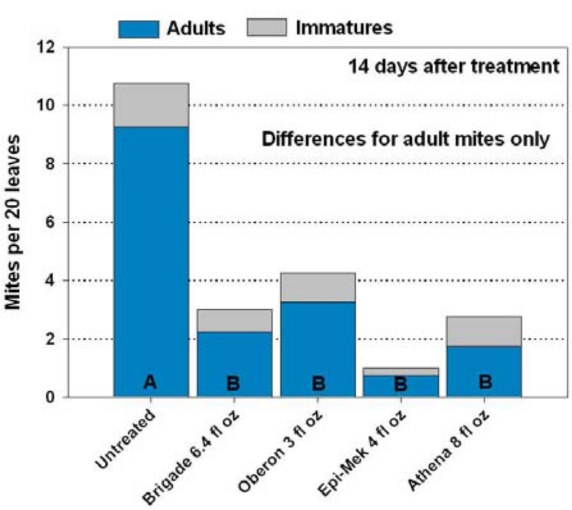
The final session of activities will be an Alfalfa Production meeting which will be held from 6-8 p.m. at the Gaines County Civic Building with a light supper and refreshments and will include a trip to a local alfalfa field. Dr. Calvin Trostle, Texas AgriLife Extension Agronomist, will be the keynote speaker at the meeting. Individuals with pesticide applicators licenses will be awarded one (1) general Continuing Education Unit (CEU) for attending this program.

Spider mites

Spider mites are still present in some fields at very low levels. Below are results from the spider mite test that was put out near Welch, TX at 3, 7 and 14 days after treatment.







Dr. David Kerns, also put out a second mite test and he reported the following results in the June 13 edition of FOCUS on South Plains Agriculture that be found on the web at http://lubbock.tamu.edu/focus/focus_2011/July_13/July_13.pdf. Bifenthrin (Brigrade, Sniper and other generics) at 5-6.4 fl oz/ac, Oberon at 3-6 fl oz, Epi-Mek (also Abba, Agri-Mek, Zoro and other generics) at 6-8 fl oz, or Zeal at 0.75-1 oz. Use higher rates when the mite population is very high or dust and webbing is on the leaves. Use high spray volumes if possible. At least 15 gal/ac by ground or 5 gal/ac by air and include a non-ionic surfactant."

Peanut Progress, July 2011

Initial pod rot fungicide Applications

Drought conditions are affecting the majority of peanut production regions in Texas, especially the High Plains. As a result, the peanut crop appears to be behind where we typically are this time of year. While blooms are present in the majority of fields peg initiation and pod development are lagging. Growers generally make initial pod rot fungicide applications 60 to 70 days after planting. When making initial applications, one must take into consideration the growth stage of the plant. Applications made to early (prior to peg development) may results in an increase in pod rot late in the season or lead to an additional (third application) being made towards the end of the season. To read more from the Peanut Progress Newsletter click on this link http://peanut.tamu.edu/2011Newsletter03.pdf

Special Thanks to the Gaines County TPMA Scouting Program Sponsors

Special Thanks to our Platinum Sponsors of $1000

Carter & Co. Irrigation Inc.
Oasis Gin Inc.
Ocho Gin Company
Tri County Producers Coop

Thanks to our Gold Sponsors of $750

West Texas AgriPlex

Thanks to our Silver Sponsors of $500

AG Aero
Doyle Fincher Farms
Five Points Gin
Golden Peanut Company
Nolen AG Services Inc.
Ocho Corp. Crop Plus Insurance Agency
Western Peanut Growers
Wylie Implement

Thanks to our Bronze $250 Sponsors

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.

Thanks to our $100 Sponsors

Commercial State Bank
McKinzie Insurance
State Farm Insurance

GAINES COUNTY IPM NEWSLETTER

Manda G. Anderson
Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)788-0800 cell

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

Volume IV, No. 8 July 29, 2011

General Situation

We still have not received any relief from the drought. Surprisingly, our cotton square retention has remained high under these droughty conditions, with most fields averaging between 90 to 100% square retention. However, we are starting to see some natural shedding of fruit (squares and bolls). This natural shedding process helps the plants to adjust their fruit load, which allows the plants to shift all of its efforts into maturing the retained fruit and producing harvestable bolls. Blooming cotton is ranging from 3 to 9 Nodes Above White Flower (NAWF), with several fields at 5-7 NAWF. Those fields which are at 5 NAWF are considered cutout. To determine the NAWF, simply find your uppermost 1st position white flower and count the number of nodes above that flower.

We are starting to see a few more pegs and pods in our peanut fields. Irrigation is still struggling to keep up with the plant water demands. **Be sure to contact your insurance agent before you decide to** divert water from one field to another. Dr. Dana Porter, Extension and Research Ag Engineer, wrote a very good article on crop water management in the July 27, 2011 FOCUS on South Plains Agriculture http://lubbock.tamu.edu/focus

Insect pressure remains low in most fields. However, we found a very unusual and destructive thrips species in a cotton field approximately 5 miles west of Seminole (See section on *Kurtomathrips morrilli* below).

Insects

We are picking up a few bollworms in non-Bt cotton and peanuts. But all populations are below economic thresholds. Several fields will likely be unattractive to bollworms since they have already started to cutout and there is very little lush growth. Keep an extra close eye on fields that are actively growing and have a lot of new lush growth. The following thresholds are suggested for peanuts. Spanish and Valencia peanuts should tolerate 6 to 8 worms/foot, while Virginia and runner market types should tolerate 10 to 12 worms/foot. There is an increased likelihood that secondary pest such as spider mites will develop if peanuts are treated with a non-selective worm insecticide. The non-selective worm insecticides will destroy the beneficial insects that are keeping spider mites at bay. The warm dry dusty conditions are conducive for spider mite development and I would caution growers who are considering making a "worm" application since we are already picking up spider mites in cotton and peanuts.

Beneficial insects remain light at this time, with lacewing and lady beetle adults and larvae being the main beneficial insects present in cotton and peanut fields.

We found a couple of cotton plants infested with cotton aphids, however, the plants were also covered with lady beetles and scymnus lady beetle larvae. Therefore, the aphid population will likely be devoured in a couple of days.

Spider mites continue to be found in a couple of fields. However, these populations seem to be holding steady and not increasing or decreasing. We found a couple of six spotted thrips and spider mite destroyers feeding on spider mites. Spider mite destroyers are a species of lady beetles that can eat about 1/2 dozen spider mites per day. The larva of the spider mite destroyer is dark gray to brownish and slug like. The adult is about 1/16 inch long and shiny black.

Peanut Pegging and Pod Set Obstacles

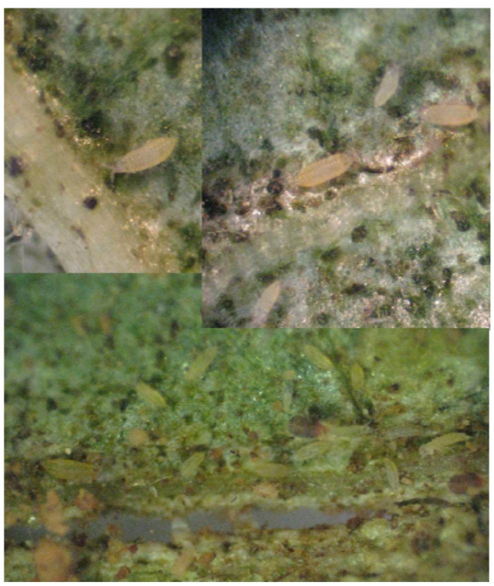
Low humidity is the biggest obstacle hampering our peanut pod set. Our peanuts have been flowering for several weeks, and we are still seeing a relatively low number of pegs and pods as compared to the actual number of flowers that have been produced by the plant. The lower number of pegs is due to the lack of humidity which is hindering flower pollination. The peanut flower is a perfect flower (male and female structures present in the same flower) and is self-pollinated. It has a showy yellow bloom and when it first emerges, the petals are folded together. The early morning of the following day the petals unfold and pollen is shed. Fertilization takes place in 3 to 6 hours. This is where we are seeing a holdup in our peanut development. The low humidity is hindering the fertilization process.

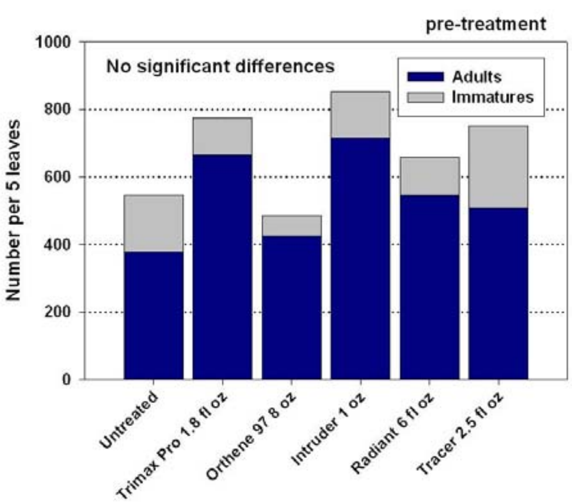
Some flowers got lucky because they were open for pollination during a spurt of higher humidity. The spurt of higher humidity likely came in the early morning hours or from the overhead sprinkler irrigation system. Once the flower is fertilized the ovary begins to elongate and grows downward from the node to the soil. This specialized structure, called a peg, becomes visible about 7 days after fertilization. The sharp-pointed peg enters the soil about 10 to 14 days after pollination. The developing pod is located in the tip of the peg. Once in the soil it begins to enlarge and forms the pod and kernels. Pods attain full size about 3 to 4 weeks after the peg enters the soil. Although the pod has reached full size, kernel development has barely begun. Mature, harvestable pods require 60 to 80 days of development. All together we are looking at 10 to 12 weeks from a bloom to a mature harvestable pod.

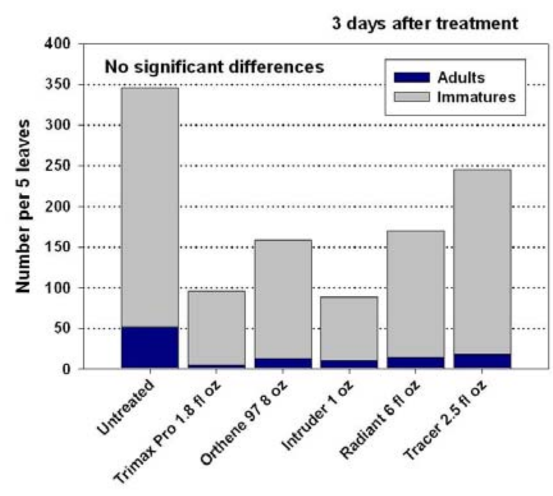
Some producers have sped up their pivots in an effort to increase the humidity level within the peanut canopy. Therefore, they are putting out ½ to ¾ inch every three days instead of 1 to 1 ½ inches every 6 days. We are hearing reports that this has increased their peg set. The fall back from this plan is that the water will not soak as deep into the ground and we will deplete our deeper moisture. Therefore, I would caution producers to keep a close eye on the peanut crop and make sure the plants are not suffering due to a lack of deep moisture. Every effort to increase pollination needs to be made cautiously since we don't know the longer term effects under this prolonged drought. With all that being said we need to try our best to get a crop set in the next couple of weeks, so that we will have time to mature out the crop and harvest before our first freeze.

Kurtomathrips morrilli on Cotton

Another very unusual pest has shown up in Gaines County. This thrips is very rare and they have only been reported a couple of places in Arizona, California, New Mexico, Texas, Nevada, Florida, Hawaii, Jamaica, and India. The reports on cotton date back to 1920-1950's. Please contact me if you think that you might have this thrips in your cotton. I would like to monitor this pest and determine the extent of its damage and number of fields infested. There has been reports of these thrips in another county this year. Therefore, this pest could be infesting more field than we originally suspected. This is where scouting your fields on a regular bases could prove to be very beneficial. Even in years like this, we need to closely monitor fields for our regular pests, pests that show up under extreme weather conditions, and random pests like this one. Below are pictures of this thrips and their damage. Most of the adult thrips are wingless. We applied an insecticide trial in the infested field in Gaines County. Pre-treatment counts ranged from 500 to 850 thrips per 5 leaves (*Graph No. 1*). The 3 days after treatment are shown in *Graph No. 2*. Most of the insecticides evaluated are slow acting, so we are going to do a 7 days after treatment count. This should give us a better idea of the effectiveness of these insecticides.







Irrigation

Be sure to keep a couple of things in mind if you are looking ahead and starting to calculate the best time to terminate irrigation on cotton. Based on current research, irrigation can be terminated at 500 – 600 heat units after cutout. Currently, we are averaging around 23 H.U. per day. Therefore, at this current rate of H.U. accumulation, research would suggest that irrigation could be terminated at 22-26 days after cutout. However, I would caution growers at cutting off irrigation too quickly. This year is going to be different, regardless of whether or not you use H.U. accumulation or crop stages (such as cracked bolls) to decide when you need to termination your irrigation. In past years, we had some subsoil moisture that could be used up after we terminated our irrigation. In contrast, this year we will likely not have any subsoil moisture and therefore, we will likely have to irrigate past our usual irrigation termination date or crop stage. The same scenario can be used on the peanut crop. We will likely have to irrigate longer than we had to in past years. These decisions are going to have to be made on a field by field basis and fields need to be watched closely in order to prevent any yield reduction due to under watering.

Kerry Siders, Extension Agent IPM for Hockley and Cochran County, has a good discussion on Cotton Irrigation Management in his newsletter today http://hockley-co.tamu.edu/newsletters/July292011.pdf

Special Thanks to the Gaines County TPMA Scouting Program Sponsors

Special Thanks to our Platinum Sponsors of $1000

Carter & Co. Irrigation Inc.
Oasis Gin Inc.
Ocho Gin Company
Tri County Producers Coop

Thanks to our Gold Sponsors of $750

West Texas AgriPlex

Thanks to our Silver Sponsors of $500

AG Aero
Doyle Fincher Farms
Five Points Gin
Golden Peanut Company
Nolen AG Services Inc.
Ocho Corp. Crop Plus Insurance Agency
Western Peanut Growers
Wylie Implement

Thanks to our Bronze $250 Sponsors

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.

Thanks to our $100 Sponsors

Commercial State Bank
McKinzie Insurance
State Farm Insurance

GAINES COUNTY IPM NEWSLETTER

Manda G. Anderson
Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)788-0800 cell

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

Volume IV, No. 9 August 5, 2011

General Situation

The drought continues and there is no relief in sight. Several more cotton fields reached cutout (cutout = 5 NAWF) this week. Nodes Above White Flower (NAWF) ranges from 1 to 7, with several fields at 3-6 NAWF. Peanuts are continuing to bloom, set pegs, and form pods. We have seen an increase in pegging and the formation of small pods this week. We are also starting to see a limb crop developing, instead of just a root crop (pegs close to the rot).

We have accumulated approximately 20% more heat units this year as compared to last year for the time period between May 1 to August 3.

Table 1. Accumulated Heat Unit (H.U.) from May 1 to August 3 for 2008, 2009, 2010, and 2011.

Year	2008	2009	2010	2011
Accumulated H.U.	1594	1522	1548	1942

***Figure 1*. Beneficial Insect - Spider mite destroyer**

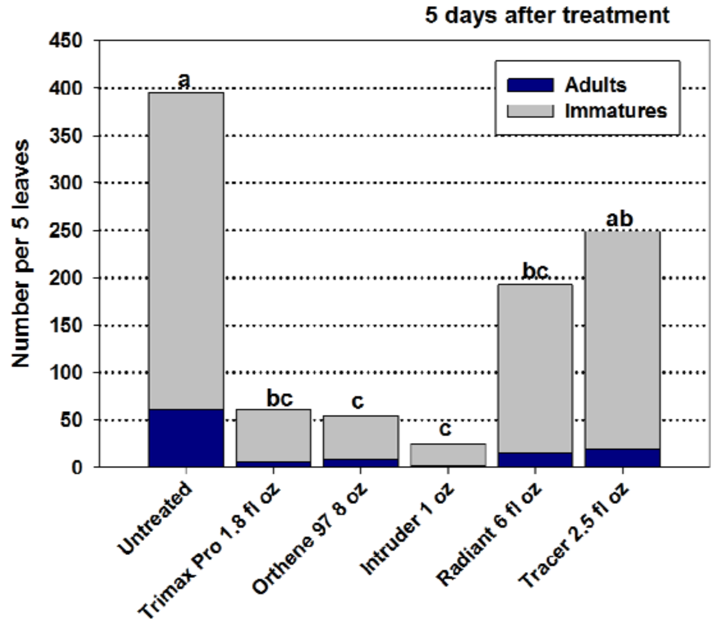
We are still picking up light populations of bollworms, fall armyworms, and beet armyworms in our peanut fields and non-Bt cotton fields. But all populations are well below economic thresholds. Beneficial insects, like spider mite destroyers (*Figure 1*) and six spotted thrips (*Figure 2*), are starting to clean up some of the spider mite populations. Both of these beneficial insects can be found quickly scurrying around the leaf as they search for spider mites & eggs to devour.

***Figure 2*. Beneficial Insect - An immature six spotted thrips (top) and adult six spotted thrips (bottom) eating mite eggs. (*photo courtesy of Dr. David Kerns*)**

Kurtomathrips morrilli (*Figure 3*) have been identified in 2 more fields in Gaines County. One field is approximately 8 miles west of Seminole and the other field is in far northwestern Gaines County. They have also been reported in Lubbock County and far northwestern Yoakum County. Therefore, this pest is widely distributed and could be found in any field. The highest populations tend to be in areas of the field that have a skippy stand, drought stressed, and/or suffering due to other factors.

***Figure 3*. Pest - An immature Kurtomathrips (top) and an adult Kurtomathrips (bottom) (*photo courtesy of Dr. David Kerns*)**

Below are the results from our *Kurtomathrips* insecticide test at 5 days after treatment. All of the products, except for Tracer, have significantly decreased the number of thrips as compared to the untreated plots. Intruder (Acetamiprid), Orthene (Acephate), and Trimax Pro (Imidacloprid) had the greatest impact on the *Kurtomathrips*. The untreated plots still have approximately 390 thrips per five leaves. This is a very destructive pest. Once a plant is infested with the thrips, the thrips will keep feeding and reproducing on that same plant, even though the plant begins to appear like it has no more substance for the thrips to feed on and it is completely destroyed. It is truly amazing the number of thrips that we are finding on dead looking plants. Please contact me if you think that one of your fields is infested with the *Kurtomathrips*.



Pod Rot Management

Pod rot is starting to show up in some peanut fields. We are picking up pod rot caused by Rhizoctonia and Pythium. Pods infected with Pythium usually have greasy dark brown-black lesions and pods may have a wet loose white fungus mat. Whereas, pods infected with Rhizoctonia have a drier dull brown lesion. Pod rot is one of those diseases that is hard to scout for because there are no symptoms above ground. Additionally, pod rot is not always evenly distributed throughout the field. One section of the field may have more pod rot than the rest of the field. Therefore fields need to be scouted thoroughly. Differentiation between Pythium and Rhizoctonia pod rot is important, since this will dictate which fungicide you need to apply. Some of the products that are listed for Rhizoctonia management are Abound, Artisan, and Convoy. Folicur and Provost are labeled for Rhizoctonia but their labels specify that applications are made in a 4-block regime. Products labeled for Pythium management are Ridomil and Abound (suppression only). One of the most important factors in the management of pod rot is to get the product down to the pegging zone. This can be done by chemigation, or increasing the carrier volume, increasing droplet size, and/or irrigating right after the fungicide is applied. Products like Ridomil are quickly absorbed into the leaf, and every effort should be made to get the product down into the pegging zone.

Irrigation

Producers are reporting that they are seeing an increase in pegging in fields where the pivot system has been sped up and they are putting out ½ to ¾ inch every three days. Additonally, the fuller mature canopies are likely helping to retain more humidity, which in turn helps set blooms.

During blooming, cotton prefers frequent, low-volume applications of water rather than large, less frequent amounts. This strategy minimizes the degree of water stress between rain or irrigation and thus increase fruit retention. Drag hoses are a more efficient way of irrigating cotton. Whereas, peanuts need the overhead sprinkler irrigation to increase the humidity in the peanut canopy (humidity helps with peanut flower pollination).

Heat Units (H.U.)

We had several fields reach cutout during the last couple of weeks. There are several management factors that are based on heat unit (H.U.) accumulation after cutout. At 350 H.U. after cutout the field should be safe from lygus. At 450 H.U. it should be safe from bollworm egg lay & stink bugs. At 500 H.U. terminate irrigation (this year could be different since we have no subsoil moisture and irrigation termination will need to be made on a field by field basis). And it takes 850 H.U. to produce a normal boll. Use the table below to estimate the number of H.U. your field has accumulated since cutout. For example, if your field reached cutout on July 22, then it has accumulated approximately 385 H.U.

Table 2. Accumulated Heat Units (H.U.) since July 15, July 22, and July 29, 2011

Date	July 15	July 22	July 29
Accumulated H.U.	556	385	200

Special Thanks to the Gaines County TPMA Scouting Program Sponsors

Special Thanks to our Platinum Sponsors of $1000

Carter & Co. Irrigation Inc.
Oasis Gin Inc.
Ocho Gin Company
Tri County Producers Coop

Thanks to our Gold Sponsors of $750

West Texas AgriPlex

Thanks to our Silver Sponsors of $500

AG Aero
Doyle Fincher Farms
Five Points Gin
Golden Peanut Company
Nolen AG Services Inc.
Ocho Corp. Crop Plus Insurance Agency
Western Peanut Growers
Wylie Implement

Thanks to our Bronze $250 Sponsors

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.

Thanks to our $100 Sponsors

Commercial State Bank
City Bank Lubbock
McKinzie Insurance
State Farm Insurance

GAINES COUNTY IPM NEWSLETTER

AgriLIFE EXTENSION
Texas A&M System

Manda G. Anderson
Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)788-0800 cell

TEXAS IPM
Partners with Nature

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

Volume IV, No. 10 August 12, 2011

General Situation

If I was a betting woman, I would have laid some money down yesterday afternoon and bet that we were going to get a good hard rain. Thank goodness I am not a betting woman, because all we got was a few rain drops, wind, and blowing sand. One farmer said that at his house, "The rain couldn't keep the concrete wet; it dried faster than it came down." But we do have another chance for rain tonight and the clouds are already starting to build. So come on rain!

We saw a few cracked bolls and open cotton in a couple of fields this week. We picked up some more Rhizoctonia and Pythium pod rot in peanut fields this week.

In my last couple of newsletters, I discussed how more frequent irrigations will help increase the humidity within the peanut canopy, which in turn will help with flower pollination. However, we have reached the point at which blooms will likely not have a chance to make a mature peanut. It takes 10 to 12 weeks from bloom to a mature harvestable pod. Therefore, efforts need to be directed at maturing the current crop load instead of setting more blooms. For that reason, it is time to slow down the pivots and give the field a deeper soaking irrigation. For more information on the current peanut crop, please see the latest edition of Peanut Progress at http://peanut.tamu.edu/2011Newsletter04.pdf

Beet armyworms, fall armyworms, & garden webworms in peanuts and grazing crops

***Figure 1*. Beet armyworms in peanuts**

***Figure 2*. Garden webworms on weeds in a hay grazer field**

***Figure 3*. Garden webworms and Fall armyworms feeding on hay grazer**

The only pests of real concern this week are worms in peanuts and 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. Since the worm populations are made up of beet armyworms and fall armyworms, you can use products that are specific for armyworms. The following thresholds are suggested for peanuts. Spanish and Valencia peanuts economic threshold is 6-8 worms/ft., while Virginia and runner market types threshold is 10-12 worms/ft. Always be on the lookout for secondary pest outbreaks following an insecticide application. This year we need to be extra cautious and try not to flare spider mites in treated fields.

With hay shortages, some growers may be considering bailing crops or grazing. Therefore, any leaf loss due to insects can hinder these plans. An integrated approach will help in reducing the likelihood of insect infestations. When scouting fields, be sure to stop and check insect pressure on the weeds in the field or surrounding the field. Insects, like "worms", can build up on the weeds and then migrate to the crop following a herbicide application or tillage. It will be easier to control the worms on the weeds, rather than trying to control them once they have started feeding on the crop, especially if they have started to feed in the whorl of the plants. Above are some pictures of a worm infestation in hay grazer. The worms initially built up on the pig weeds and started migrating to the hay grazer after the pig weeds where killed with a herbicide.

In the August 9, 2011 edition of Focus on South Plains Agriculture, Dr. David Kerns had some really good points about determining if an insecticide application is justifiable. He said "Remember that we do not protect cotton (or in this case any crop) from insect pests for the sake of pure protection, but to preserve profit. Essentially, if an insecticide application costs less than what the insect damage would cause, then it is justified. If the insect will cause less damage than it costs to control it, then the application is not justified."
http://lubbock.tamu.edu/focus/focus_2011/August_9/August_9.pdf

FSA Acreage Report as of August 8, 2011

Table 2. FSA acreage report for Gaines County

Cotton	Irrigated	Standing	175,590
Cotton	Irrigated	Failed	36,908
Cotton	Non-Irrigated	Standing	13,340
Cotton	Non-Irrigated	Failed	113,841
Peanuts	Irrigated	Runners	8,488
Peanuts	Irrigated	Spanish	1,141
Peanuts	Irrigated	Valencia	26
Peanuts	Irrigated	Virginia	10,909

Heat Units (H.U.)

Use the table below to estimate the number of H.U. your cotton field has accumulated since cutout. For example, if your field reached cutout on July 22, then it has accumulated approximately 574 H.U.

Table 1. Accumulated Heat Units (H.U.) since July 15, July 22, and July 29, 2011

Date	July 15	July 22	July 29	August 5
Accumulated H.U.	745	574	389	216

Here is some information that may help you evaluate your peanut crop

Even though we have potential to set blooms for one more week, the lack of canopy in some fields has greatly reduced the growers ability to increase the humidity within the canopy, which would result in more flowers being pollinated. Additionally, we are running out of time for blooms to produce harvestable pods which can be harvested before our first freeze. Please see the paragraphs below for a breakdown of the various factors. I realize a lot of this is very evident for producers who have been watching their crops struggle during this entire season.

In the August 2011 edition of Peanut Progress Dr. Todd Baughman, State Peanut Agronomist, had the following discussion. "One thing we have noticed is where we have increased the speed of the pivot, it has appeared to help bloom set and pod development. What growers are doing is applying 0.75 inches of water every 3-4 days versus applying 1.5 inches in 7- 10 days for instance. What I think is happening is we are keeping the canopy wetter at night and early morning for more days during the week. This in turn has increased the humidity in the canopy more often which has enhanced pollination of the blooms and subsequent peg and pod development." However, if a field does not have sufficient canopy to increase the humidity in, then the plant canopy cannot take advantage of the more frequent irrigations. During the bloom period, water stress can delay formation of flowers, or under extreme conditions flowering can be completely inhibited. In Texas, it's not a matter of if there will be extreme heat and moisture stress, it's a question of when, how long, and how bad? Even with irrigation, extreme climatic factors can be very difficult to overcome. According to the National Weather Service Forecast Office from 1981-2010, Seminole had an average rainfall of 9.19 inches between May 1 and August 31. In 2011, Seminole has received 0.03 inches for this same time period.

Optimum temperature for peanut growth and development is about 86°F. Very high temperatures slow down crop growth rate. Even in conditions of adequate water, temperatures above 95°F can impair crop development. Peanuts have a higher rate of flower and fruit set and better pod development at temperatures less than 90°F. High temperatures, occurring both day and night, can reduce flower set. Research has shown that the optimum temperature for flowering and peg set ranges between 68°F to 80°F. An exposed sandy soil can get very, very hot, thus affecting flower set. High temperatures reduce the number of flowers produced, and when coupled with low humidity, flowers may not pollinate well. Under hot and dry conditions, flower structures may not develop properly, resulting in poor fertilization. Since May 1, we have had several days of excessive temperatures. In the last 103 days, 77 days have been 95°F or greater, and 46 of these days have been 100°F or greater.

Additionally, we are running out of time for the peanut crop to develop. Dr. Baughman, also stated that "the developing peg should reach the ground in 10-14 days after pollination. This requires that we also keep the ground moist so that the peg can enter the soil and develop into a mature pod. Keeping the soil wet will also help to keep the surface cool so that the developing peg is not burned off. While the pod will reach full size in 3-4 weeks, the developing kernel will require 10-12 weeks to reach full size. Therefore, we are reaching the final stages of the season where we can develop a full pod. However, with some help from Mother Nature, we hopefully can continue to mature this crop out through the end of October. However, that means we are reaching the last week or two of potentially effective bloom period."

Growers need to be able to mature their crop and harvest before our first freeze. According to the National Weather Service Forecast Office http://www.srh.weather.gov/maf/?n=cli_maf_freeze_data_seminole starting on October 18th, there is a 10% probability of freeze (32 degrees F), and starting on November 3rd, there is a 50% chance of a freeze. Therefore, peanut flowers pollinated on August 8, should be mature pods around October 17 (10 weeks) to October 31st (12 weeks). This all depends on the weather during September and October. If the weather turns cooler, then it will take longer for these pods to develop.

Information on peanut development was obtained from the *Texas Peanut Production Guide*.

Special Thanks to the Gaines County TPMA Scouting Program Sponsors

Special Thanks to our Platinum Sponsors of $1000
Carter & Co. Irrigation Inc.
Oasis Gin Inc.
Ocho Gin Company
Tri County Producers Coop

Thanks to our Gold Sponsors of $750
West Texas AgriPlex

Thanks to our Silver Sponsors of $500
AG Aero
Doyle Fincher Farms
Five Points Gin
Golden Peanut Company
Nolen AG Services Inc.
Crop Plus Insurance Agency
Western Peanut Growers
Wylie Implement

Thanks to our Bronze $250 Sponsors
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.

Thanks to our $100 Sponsors
Commercial State Bank
City Bank Lubbock
McKinzie Insurance
State Farm Insurance

GAINES COUNTY IPM NEWSLETTER

Manda G. Anderson
Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)788-0800 cell

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

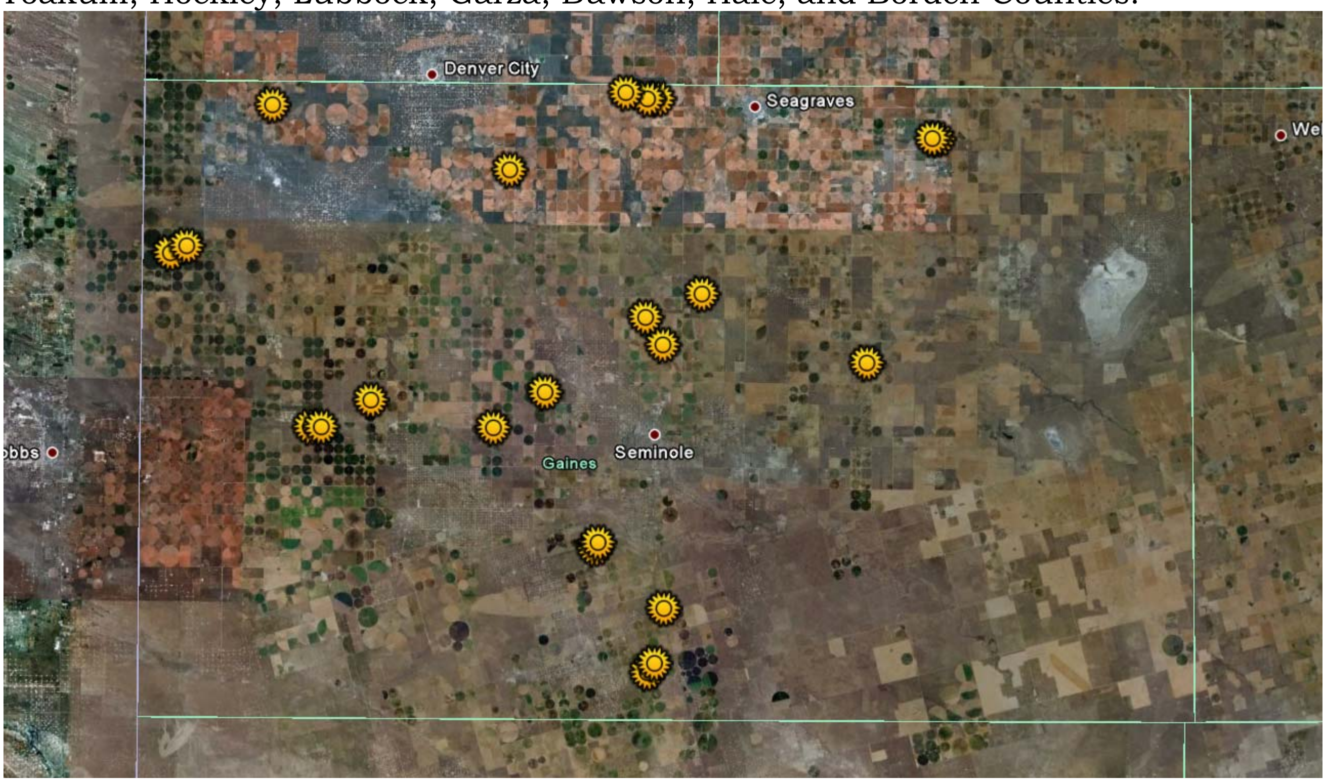
Volume IV, No. 11 August 26, 2011

General Situation

Cotton harvesting time is quickly approaching. We will probably see some fields being defoliated in the next couple of weeks. Peanut harvest will likely be pushed back a couple of weeks, due to the later crop set. Southern Blight has been confirmed in a couple of fields (See section on *Peanut Diseases* below).

Kurtomathrips

Below is a map of the fields that we have identified as being infested with Kurtomathrips. Several crop consultants and ag industry representative have also reported that they have found Kurtomathrips in several other fields in Gaines County. This is a widespread pest. They have also been reported in Terry, Yoakum, Hockley, Lubbock, Garza, Dawson, Hale, and Borden Counties.



This week we found fields that had recently been infested with Kurtomathrips. Fields under extreme stress are the most susceptible. Small areas of infestation can quickly spread throughout the whole field when a stress event occurs. I would recommend scouting your fields every other day and make good notes of newly infested areas. When deciding whether or not an insecticide is justified, you need to consider the cost of chemical and application, and the value of the bolls that still need to be filled. Additionally, defoliation is likely going to be difficult this year due to the fact that the leaves are leathery and unable to take up a lot of chemical.

Kurtomathrips infestations may further complicate things, since their feeding cause the leaves to dry up and become brittle. The only bright side to these thrips is that they are easily controlled and the cost for an insecticide can be around $1.50/acre, depending on your insecticide choice.

On July 25 we applied an insecticide trial in an infested field. At 5 days after treatment Intruder (Acetamiprid) at 1oz, Orthene (Acephate) at 8oz, and Trimax Pro (Imidacloprid) at 1.8 oz had the greatest impact on the *Kurtomathrips*.

We applied a second insecticide trial on August 17. At 7 days after treatment all of the insecticides had significantly reduced the number of *Kurtomathrips* per leaf (See *Table 1*).

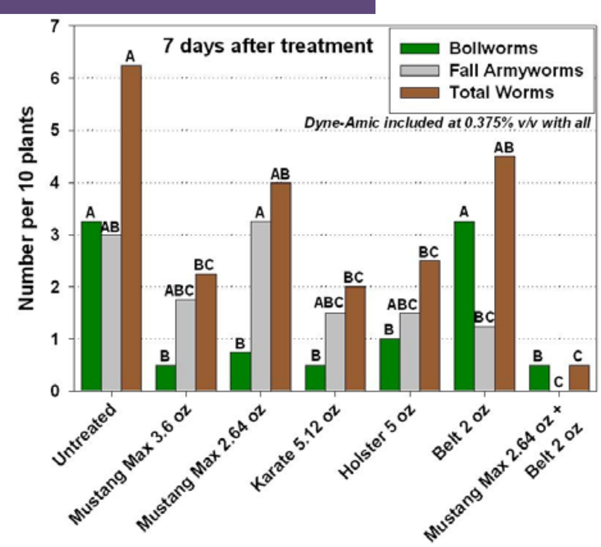
***Table 1*. Average number of *Kurtomathrips* per 10 leaves**

Treatment Name	Average Number of Thrips per 10 leaves
Untreated Check	274.8 a
Trimax Pro 1.2 oz	52.3 b
Trimax Pro 1.8 oz	29.5 b
Orthene 97 4 oz	20.0 b
Orthene 97 8 oz	26.0 b
Intruder 0.6 oz	25.5 b
Intruder 1 oz	30.5 b
Centric 40WG 1.8 oz	54.5 b
Centric 40WG 2.5 oz	22.5 b

Please feel free to contact me if you have any questions about this pest. For more information on Kurtomathrips, please refer to my July 29 and August 5 newsletters, which can be found on the web at
http://gaines-co.tamu.edu/newscat.cfm?COUNTY=Gaines&CatID=2032
Dr. David Kerns, Extension Entomologists, has also extensively covered this pest in the last couple editions of *FOCUS on South Plains Agriculture*, which can be found on the web at http://lubbock.tamu.edu/focus/

Bollworms, fall armyworms, & beet armyworms

We are finding bollworms, fall armyworms, and beet armyworms in non-Bt cotton and peanuts. We have treated two non-Bt cotton fields near the Texas/New Mexico state line. Do not rely solely on a pyrethroid if you have a combination of bollworms and fall armyworms. Fall armyworms are less susceptible to pyrethroids. Below are the results from an insecticide trial that we applied last year. The Mustang Max + 2 oz Belt gave us the best control.



Peanut Diseases – ***Reported By Dr. Jason Woodward in the August 25, 2011 edition of FOCUS of South Plains Agriculture***

The pathogen that causes Southern blight is *Sclerotium rolfsii*. Several things must be taken into consideration when determining treatment options. First off, is there sufficient yield there to protect. The effects of widespread drought have greatly impacted flowering, pegging, as well as pod initiation and development. To be blunt some of the peanuts there may not be worth protecting. More importantly, however, is the level of disease. It is not uncommon to see sporadic occurrences of Southern blight any given year. Fungicide application made to protect against pod rot appear to suppress Southern blight. So there is the potential for increased incidence of Southern blight if pod rot application were avoided due to the hot dry conditions; however, the level of Southern blight pressure I see on the High Plains is moderate at best.

The most severe Southern blight I have seen this season is occurring under two scenarios 1) in areas where water is pooling due to a leak in the irrigation line and 2) in fields experiencing excessive fluctuations in soil moisture between irrigation events. Physically monitoring disease development is also important when considering fungicide applications. The majority of fields exhibiting symptoms of Southern blight show little activity of S. rolfsii in the lower canopy. When dealing with aggressive populations of the fungus, it is common to see the disease progress down long portions of the row; similar to what we see with Sclerotinia blight, which is essentially non-existent this year. The appearance of the fungus in the lower canopy can be an indicator as to how the disease may develop. For example, if the fungus is actively growing with mycelium (the white moldy growth) bridging the space between plants, killing numerous plants and producing a large number sclerotia then there is the potential for yield loss. However, if the fungus is restricted to the crown area or a few lateral branches and relatively inactive then yield losses will not occur. When scouting for Southern blight, keep in mind that the fungus can also affect pegs and pods below ground with little to no evidence of the fungus on the soil surface. Furthermore, there is a saprophytic fungus that resembles Souther blight that possesses no threat to yield or vine integrity. One way to differentiate the two is to closely examine the affected area. If the fungus is easily removed with your finger and the underlying tissue is not degraded then you are dealing with the 'tooth fungus' that will not affect yield.

FSA Acreage Report as of August 22, 2011

Table 2. FSA acreage report for Gaines County

Cotton	Irrigated	Total Acres	209,968
Cotton	Irrigated	Failed	39,086
Cotton	Non-Irrigated	Total Acres	132,670
Cotton	Non-Irrigated	Failed	123,159
Peanuts	Irrigated	Runners	8,488
Peanuts	Irrigated	Spanish	1,141
Peanuts	Irrigated	Valencia	26
Peanuts	Irrigated	Virginia	10,909

Special Thanks to the Gaines County TPMA Scouting Program Sponsors

Special Thanks to our Platinum Sponsors of $1000

Carter & Co. Irrigation Inc.
Oasis Gin Inc.
Ocho Gin Company
Tri County Producers Coop

Thanks to our Gold Sponsors of $750

West Texas AgriPlex

Thanks to our Silver Sponsors of $500

AG Aero
Doyle Fincher Farms
Five Points Gin
Golden Peanut Company
Nolen AG Services Inc.
Crop Plus Insurance Agency
Western Peanut Growers
Wylie Implement

Thanks to our Bronze $250 Sponsors

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.

Thanks to our $100 Sponsors

Commercial State Bank
City Bank Lubbock
McKinzie Insurance
State Farm Insurance

GAINES COUNTY IPM NEWSLETTER

Manda G. Anderson
Extension Agent - IPM
101 S. Main RM B-8
Seminole, TX 79360
(432)788-0800 cell

http://gaines-co.tamu.edu
http://www.tpma.org
http://ipm.tamu.edu
mganderson@ag.tamu.edu

Volume IV, No. 12 September 12, 2011

General Situation

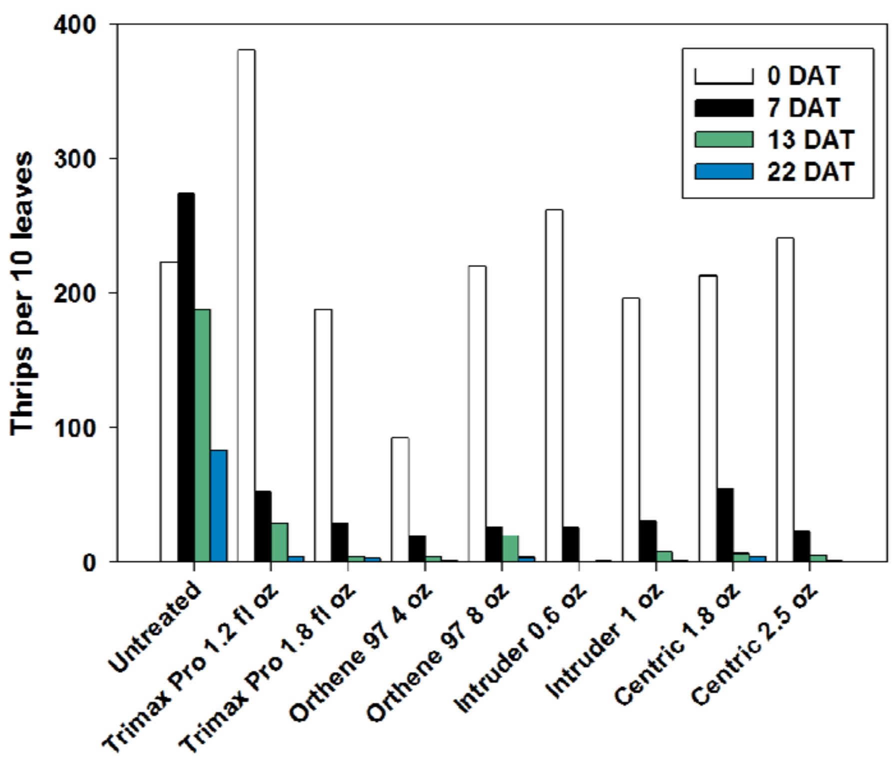
Defoliants were applied on a few cotton fields last week. We will likely see several more fields being defoliated in the next couple of weeks. For information on harvest aids please refer to the 2011 High Plains and Northern Rolling Plains Cotton Harvest-Aid Guide http://lubbock.tamu.edu/cotton/pdf/2011HarvestAidGuide.pdf

Peanut harvest has been pushed back, in order to mature the later set crop. We have observed some salt damage in a couple of peanut fields. Salts are left behind as the irrigation water evaporates. This allows for a buildup of salt in the root zone. We need a good flushing rain to start leaching the salts below the root zone. Producers can have their water tested to determine the salinity levels in their water. Although, there is nothing we can do about the salt damage this year, knowing your salinity levels in your irrigation water will help you prepare for and manage for the issues that may appear next season.

Kurtomathrips

Kurtomathrips are still being reported throughout the county and the Southern High Plains. Below are the results from the second insecticide trial that Dr. David Kerns, Extension Entomologist, and I applied in Gaines County.

The bars represent the average number of Kurtomathrips per 10 leaves at 0 (Zero), 7, 13, and 22 Days After Treatment (DAT). The pre-treatment counts (represented here as 0 DAT) are the white bars, 7 DAT are the black bars, 13 DAT are the green bars, and 22 DAT are the blue bars. The high and low rates of the insecticides significantly decreased the number of thrips as compared to the untreated check plots.



UpComing Field Days

All-Tex Annual Field Day
September 14, 2011
10:00 to 2:00
Levelland Delinting Warehouse #4, 2200 West Avenue, Leveland, TX
For futher information please call 806-894-4901 or 800-725-5839

Sesaco Field Day
September 16, 2011
10:00
Texas Tech University's Quaker Farm, Lubbock, TX
Please contact Jerry Riney 806-778-2193

Bayer CropScience Cotton Field Day in Gaines Co.
September 16, 2011
9:30am
At Judd Chevrount's Farm, 2 1/2 Miles South of HWY 62 (Hobbs HWY) on CR 331 (towards Ocho and Oasis Gins). Then half a mile back East on Turnroad. Caution: Very Sandy
Please contact Bryan Henson at 806-549-5967 for further information.

Dow AgroSciences PhytoGen Tailgate
September 23, 2011
8:30 to 2:00
Overton Hotel and Conference Center, 2322 Mac Davis Lane, Lubbock, TX
Please contact Brad Ferguson for further details 806-252-7209
Please RSVP and register for this event by visiting the following website:
http://events.signup4.com/Tailgate11

DeltaPine Field Tours
Please contact your local Territory Sales Manager for further details.
Shane Beilue 806-316-7611
Rhett Brewster 806-407-0967
Larry Martin 806-470-8097
Kirk Marnell 432-230-3749

Bayer CropScience Annual Field Days
September 28 & 29, 2011. September 28 is the suggested day for attendees south of Lubbock, but everyone is welcome either day.
Registration begins at 9:30 a.m. each day.
Bayer Cotton Breeding Station east of Idalou on US 82/62 next to the apple orchard.
Please contact Bryan Henson at 806-549-5967 or Kenny Melton at 806-786-5088 for further details.

Please let me know if there are other field days that need to be announced.

Special Thanks to the Gaines County TPMA Scouting Program Sponsors

Special Thanks to our Platinum Sponsors of $1000

Carter & Co. Irrigation Inc.
Oasis Gin Inc.
Ocho Gin Company
Tri County Producers Coop

Thanks to our Gold Sponsors of $750

West Texas AgriPlex

Thanks to our Silver Sponsors of $500

AG Aero
Doyle Fincher Farms
Five Points Gin
Golden Peanut Company
Nolen AG Services Inc.
Crop Plus Insurance Agency
Western Peanut Growers
Wylie Implement

Thanks to our Bronze $250 Sponsors

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.

Thanks to our $100 Sponsors

Commercial State Bank
City Bank Lubbock
McKinzie Insurance
State Farm Insurance