2009 ANNUAL REPORT
OF THE
INTEGRATED PEST MANAGEMENT PROGRAM
IN
TERRY AND YOAKUM COUNTIES

Prepared by

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IN COOPERATION WITH
TERRY - YOAKUM PEST MANAGEMENT ASSOCIATION
AND
TEXAS PEST MANAGEMENT ASSOCIATION

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ACKNOWLEDGMENTS

The success of this Extension program is dependent on the cooperation and participation of area producers and agribusiness personnel. Appreciation is extended to the following individuals for their participation as Terry - Yoakum Pest Management Association Steering Committee Members:

Rickey Bearden
Tommy Box
Ron Craft, Vice - Chairman
Scott Foshee
Michael Franke
Stacy Franklin – Secretary-Treasurer
Chris Elkins
Ronald Luker - Chairman and TPMA Director
Alfred Pippin

Appreciation is also extended to the Terry and Yoakum County Commissioners and County Judges for their support and promotion of the Terry-Yoakum IPM Program.

Gratitude is also expressed to the following individuals for their participation in the Terry - Yoakum Pest Management Association field scouting program:

Jim Barron
Alan Bayer
Rickey Bearden
Cliff Bingham
Daniel Canada
Dwayne Canada
Michael Franke
Ronald Jordan
Ricky Mills
Manuel Macias
Tommy Mason
Russel Lepard
Nathan Lowe
Lance Richolson
Jeff Roper
Billy Tidwell
Tracy Welch

Appreciation is extended to the following individuals for their cooperation with result demonstrations and research plots:

Rickey Bearden
Cliff Bingham
Burris Family Farms
Klint Forbes
Keith Foshee
Monty Henson
Gary Jackson
Ronald Jordan
Russel Lepard
Glenn Martin
Tommy Mason
Larry Nelson
Shannon Patton
Michael Todd
Glenn Waters

Appreciation is expressed to the following Texas A&M University System personnel for their support and assistance in the development and implementation of the IPM program:

Dr. Kevin Heinz	Head of Entomology Department, College Station
Dr. Charles Allen	Extension Entomologist and IPM Coordinator, San Angelo
Dr. Chris Sansone	Assoc. Dept. Head, Extension Program Leader, College Station
Miles Dabovich	District Extension Director - Agriculture, Lubbock
Galen Chandler	Regional Program Director- Agriculture and Natural Resources, Lubbock
Dr. Randy Boman	Extension Agronomist, Lubbock
Dr. Peter Dotray	Extension Weed Scientist, Lubbock
Dr. Jason Woodward	Extension Plant Pathologist, Lubbock
Dr. David Kerns	Extension Entomologist, Lubbock
Dr. Megha Parajulee	Entomology-Cotton, Lubbock
Dr. Dana O. Porter	Assistant Professor and Extension Agricultural Engineering Specialist- Water Management, Lubbock
Dr. Robert P. Porter	Associate Professor and Extension Entomologist, Lubbock
Dr. Calvin L. Trostle	Assistant Professor and Extension Specialist, Lubbock
Dr. Terry Wheeler	Research Pathologist, Lubbock
Chris Bishop	County Extension Agent - Agriculture, Terry County
J. W. Wagner	County Extension Agent - Agriculture, Yoakum County
Rae Cox	Extension - IPM Secretary
Judy Besler	Office Manager, Terry County Extension Office

Appreciation is expressed to the following individuals for their technical support:

Julie Edwards	Terry-Yoakum P.M.A. Field Scout
Lauren Russell	Terry-Yoakum P.M.A. Field Scout
Garrett Besler	Terry-Yoakum P.M.A. Field Scout

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

A special thanks is extended to fellow IPM Agents for their cooperation, support, guidance and encouragement.

Table of Contents

AgriLIFE EXTENSION
Texas A&M System

Improving Lives. Improving Texas.

Results of 2009 Terry and Yoakum Counties Integrated Pest Management Program Survey

Your views on the quality and effectiveness of Extension programs are extremely important. Please take a few minutes to tell us about your farming operation. Your answers to the following questions will help us better meet your needs in the future. Thank you!

RESPONSES ARE IN BOLD; 11 of 31 surveys returned (32%)

1) What was your average cotton yield in **2008** *(Lbs lint/acre)*?

Total __**333**____ *Dryland* __**1108.64**____ *Irrigated*

2) What was your average peanut yield in **2008** *(Lbs acre)*? ______**Average 3778**__

3) In **2009**, what were your major crops and how many acres of each? *Average*

Cotton ____**834**_______ acres — Grain Sorghum ____**643**_______ acres

Peanuts ____**90**________ acres — Wheat _______**256**_____ acres

Other (please specify crop) *Sudan* ***30 acres*** — Dryland Wheat **900 acres**

Grapes ***5 acres*** *Ensilage* ***105 acres***

4) Do you regularly monitor or have your crop monitored for pests (please circle the appropriate answer)?

No **1** *Yes* **10** ***if yes,*** *what % of acres are monitored?* ***__58____*** *%*

5) Did you plant Roundup Ready Flex cotton in 2009? __**10**___ *yes* ___**1**___ *no*

If no, please explain why not. **Too dry**

6) Did you plant Bt cotton (Bollgard or Widestrike varieties) in 2009? ____**10**_ *yes* ___**1**___ *no*

If no, please explain why not. ***Too dry***

7) Please provide the number of acres planted to cotton in 2009 and anticipated acres for 2010.

	Planted **2009**	Anticipated **2010**
Conventional Cotton (non-Bt traits, non-weed control traits)	**120**	**860**
Roundup Ready / Roundup Ready Flex (no Bt trait)	**658**	**775**
Roundup Ready Flex / Roundup Ready Flex – Bt stacked	**649**	**821**
Liberty Link / Liberty Link – Bt stacked		**561**

8) Does Integrated Pest Management (IPM) reduce your risks associated with crop production? (please circle the appropriate answer) *No* **0** *Yes* **10** *Unsure* **1**

Comments:
No insect damage
Helps you consider all options
It helps me determine what's going in the crop.

9) Do you consider natural enemies when making pest management decisions (please circle the appropriate answer)?

Never **1** *Seldom* **0** *Sometimes* **1** *Often* **1** *Always* **8**

10) Does IPM usually maintain or increase yields while reducing input costs resulting in increased net profits?

No **0** *Yes* - **9** -*if yes,* by an average of what dollar amount/acre? **$ _14.30_**

11) Do you use information or data collected from Extension demonstrations or applied research projects to make changes in your farming operation? *Yes* ***6*** *No* ***0***

If yes, please estimate the value of this data on a per acre basis, in your farming operation:
1 *a. $0-5.00* ***2*** *b. $5.00-10.00*
5 *c. $10.00-20.00* ***1*** *d. more than $20.00*

12) Did you participated in any Texas AgriLIFE Extension Service- IPM Educational Programs in 2008 (including, but not limited too: scouting program, *T-Y IPM News*, Peanut Workshops, Farm Tours, South Plains Ag Conference, etc**)**

No **0** *Yes* **9**

If yes, how many programs (please circle) **1. -1 2. -2 3. -5 4. -1 5. -1** ***more -0***

Average number of programs attended **2.9**

13) Do you believe you gained information from any of these programs which will help to increase your "bottom line"? *No*-**0** *Yes*-**9**

Please estimate how much _**$20.90**__per acre

14) If you were to assign a figure to represent the value of the Texas AgriLIFE Extension Service - IPM Program to your operation, including monitoring crop development, pest and natural enemies, conducting applied research and demonstrations and providing educational programs, what would the value per acre be?

average___**$29.91**_per acre

15) Has the IPM program been instrumental in your decision to adopt new technology (scouting methods, crop varieties, genetic traits, etc.) on your farm?

No **-1** *Yes* **-8** *Unsure* **-2**

If yes, which new technology and how did it help?

***genetic traits, less pesticides applied when needed, beneficial pesticides applied**

*** Scouting methods**

16) Are the IPM newsletters helpful when making pest management (insect, weed and disease) decisions?

No **-0** *Yes* **-11** *Unsure* **-0**

17) Do you regularly read the *T-Y IPM News*, during growing season? *No* **-0** *Yes* **-11**

If yes, how do you access it: *A) via U.S. mail* **6** *B) Electronically* **5**

Feel free to add any additional comments (use additional sheets as needed).

Thank you for your input!!!
Scott A. Russell

Educational Activities 2009

Newsletters:	
No. Issues Written	8
No. Non-Extension Clientele on Mailing List	1064
No. Non-Extension Clientele on E-mail and Fax List	739
Total Non-Extension Clientele	1803
Radio Programs	24
TV Interviews	0
AgNews press releases	0
Published Abstracts	1
Youth curricula developed	1
Courses taught	0
Guest Lectures in College Classes	0
Scientific Presentations/Posters	0
Newspaper Articles:	
No. Prepared	21
No. Newspapers Carrying	3
Farm Visits	621
Scouts Trained	5
Consultants Trained	2
Extension Volunteers trained	0
CEU Credits Offered	15.5
Non-TDA CEUs offered	0
Pest Management Steering Committee Meetings	1
Presentations Made:	
County Meetings	2
Field Days/Tours	4
Multi-County/Regional Meetings	4
Schools	11
Civic Clubs	0
4-H Clubs	3
Professional Meetings	0
No. Master Gardener Meetings	0
No. Contacts	331
No. Research/Demo. Project Initiated	21
No. Direct Ag Contacts	3223
Other Direct Contacts	37700

2009 Terry – Yoakum Counties Integrated Pest Management Program Outcome Summary

Scott A. Russell, Extension Agent – Integrated Pest Management

Relevance

Agriculture is the driving force for the economies of both Terry and Yoakum Counties Texas. The combined agricultural income for the two counties was estimated at over $237 million for 2008. The number one commodity in both counties is cotton followed by peanuts. These two commodity's prices are directly impacted by the highly competitive world market (as are all U.S. agriculture commodities), therefore producers must be very diligent to balance inputs against potential profit. While managing inputs, the producer must also protect the environment for future crop production. The principles of integrated pest management strive to reduce economic loss to crops and protect the environment by utilizing an assortment of pest management strategies. The Terry-Yoakum Integrated Pest Management (IPM) Program Steering Committee meets regularly to direct educational programs for the purpose of protecting agricultural viability in the two counties. Producers, crop advisors and agribusiness personnel need knowledge of best management practices, new varieties and new technologies in order to make informed production decisions and maximize profit.

Response

Program development for the Terry-Yoakum IPM program is guided by the IPM Steering Committee. Committee members prioritize needs of area agriculture and direct educational efforts. Collaborations with area cotton gins, peanut buying points, seed and chemical companies and Extension/Research Specialists aid in implementation of the IPM Program. Collaborations with the South Plains Underground Water Conservation District, Terry and Yoakum County Soil and Water Conservation Districts and local Farm Service Agency offices help to implement programs and aid in identifying issues.

The Terry-Yoakum IPM Program utilizes multiple education strategies to reach clientele. The *T-Y IPM News* newsletter is published bi-weekly during the growing season and provided to clientele via US postal service or e-mail; face to face workshops are conducted; on-farm applied research is conducted in collaboration with area Extension Specialists and local news media are utilized to communicate with producers, crop advisors and other clientele.

The *T-Y IPM News* published 8 issues reaching 1803 non-Extension clientele with crop production and pest management news for Terry and Yoakum counties. Twenty-two radio programs and 19 newspaper articles (January thru October) have been prepared addressing crop production and pest management practices. Applied research trials in cotton and peanut addressed variety selection, disease management, weed management and general crop production practices. A field scouting program utilized weekly field inspections and grower contacts to educate growers and collect pest data.

During 2009 the following educational events were conducted:

South Plains Ag Conference - Brownfield
Southern High Plains Peanut Workshop – Plains
Pesticide Applicator Training – Meadow
Sorghum Production Workshop - Brownfield
Terry County Farm Tour – Brownfield
Yoakum County Farm Tour – Plains
Peanut Field Day – Brownfield
Non-commercial Pesticide Applicator Training w/ TDA – Brownfield

A post-retrospective evaluation was mailed to participants in the IPM Scouting program and IPM Steering Committee Members, 31 surveys were mailed and ten were returned (32% returned). The survey asked participants to evaluate the activities of the Terry-Yoakum IPM Program and value its benefit to them.

Results

All respondents to the survey (10 of 10, 100%) regularly read the *T-Y IPM News* during the growing season. All ten also indicated they find the newsletter helpful when making pest (insect, weed, disease) management decisions.

- 100% (8 of 8, not all responded) of respondents believe that Integrated Pest Management maintains or increases yields while reducing input costs, resulting in increased net income.
- These individuals estimated the value of IPM at $16.50 per acre.
- 8 of 8 respondents (100%) use information from Texas AgriLife Extension demonstrations or applied research projects to make changes in their farming operation.
    - 50% (4 of 8) of these placed a value of $10 to $20 per acre on this information.
- 9 of the 10 (90%) respondents had attended at least one Extension IPM educational program during the last year. Additionally, 60% (6 of 10) of the respondents had attended at least three Extension IPM educational programs.
- 100% of the respondents indicated they gained information from these educational programs which helped to increase their "bottom line".
    - The average value estimated for this information was $23.33 per acre.
- The average value for the Texas AgriLife Extension Service IPM Program to the respondents operation was estimated to be $32.40 per acre.
- 7 of 9 (78%) of respondents indicated the IPM Program has been instrumental in their adoption of new technology on the farm.
    - Specific examples listed by respondents were:
        - Genetic traits
        - Less pesticide applied when needed
        - Scouting methods
- Individual quotes from respondents:
    - "While peanut yields dropped significantly this season, ours remained as high as 2008 due to the IPM Scouting Program."
    - "We have learned to scout for certain insects (pests) at the appropriate stage of plant development."

Producers, consultants and agribusiness persons in Terry and Yoakum Counties place a high value on the Texas AgriLife Extension IPM Program. The total economic impact of the Terry-Yoakum IPM Program was valued at over $70.00 per acre to respondents. If this value is applied to an "average" farm operation of 1000 acres that is an increased net return to the producer of $70,000.00 annually.

These results will be reviewed with the IPM Steering committee and evaluated for future direction of the IPM program in Terry and Yoakum counties. Results will also be shared with key stakeholders, such as County Commissioners.

I wish to express my gratitude to the members of the Terry-Yoakum IPM Steering Committee, Terry County Commissioners and Yoakum County Commissioners for their guidance and support of the Texas AgriLife Extension IPM program.

For more information contact:

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2009 Irrigated Cotton Variety Trial

Scott A. Russell
Extension Agent –IPM

Summary:
Five cotton varieties were compared under LEPA irrigation. There were no significant differences among varieties in bur cotton yield, lint yield, lint loan value nor lint value per acre when compared. There were differences between varieties in gin turnout with FiberMax 1740B2RF having significantly higher turnout (33%) than PhytoGen 485WRF (27%). Lint value ranged from a low of $542.16 per acre for FiberMax 9058F to a high of $650.21 for FiberMax 1740B2RF.

Objective:
The objective of this trial was to compare several cotton varieties under LEPA irrigation and standard practices for the area.

Materials and Methods:
Five cotton varieties were planted May 21, 2009 in a LEPA irrigated field. There were two seed treatments which were experimental; that data will not be presented here. All varieties were Genuity Roundup Ready Flex cottons. The Phytogen cotton varieties (PHY 375WRF and PHY 485WRF) contained the WideStrike Bt technology, while the DeltaPine 0935B2RF and the FiberMMax 1749B2RF contained the Genuity Bollgard II technology. One non-Bt variety, FiberMax 9058F was included in this trial. Plots were planted into terminated wheat, with row spacing on 40 inch centers. This was an Amarillo fine sandy loam soil. The seeding rate for this trial was 4 seed per foot. Plots were 4 rows wide, in a semi-circular pattern, and were replicated three times. Row lengths varied from 1,460 feet to 1,708 feet, the harvested plot area was calculated and yields are presented as pounds per acre. At planting, trifluralin was applied at the rate of 6.0 ounces per acre in a band and Temik was applied at 3.5 pounds per acre. Production practices were typical for area cotton. Plots were harvested with a commercial four row John Deer cotton stripper, which was equipped with a field cleaner. Each plot was harvested individually and seed cotton was weighed using a cotton boll buggy equipped with a load cell. Cotton grade samples were collected from each plot and ginned by the University of Missouri at Portageville and HVI data determined (courtesy of Phytogen Cotton Seed, Dow AgroSciences). There was no significant insect pressure therefore no insecticide treatments (other than Temik at planting) were applied. Plant growth regulators were applied as follows: 1.4 ounces of Flat-top in a band on June 26; 6 ounces of Pentia on July 9. This field had neither chemical defoliates nor desiccants applied and was harvested on November 17, 2009.

Results and Discussion:
This trial received a total of 25.75 inches of moisture; 8.75 inches of rainfall during April thru September and 17 inches of irrigation. There were no significant yield differences between cotton varieties; however DeltaPine 0935B2RF yielded over 650 pounds more bur cotton than the FiberMax 9058F. Lint yields were similar, with no significant differences between varieties. Lint yield ranged from a low of 1005.7 lbs/acre to a high of 1212.7 lbs/acre for the FM 9058F and DP 0935B2RF respectively. Significant differences did exist in the comparison of gin turnout. FiberMax 1740B2RF had significantly higher turnout than did Phytogen 485WRF, but FM 1740B2RF did not differ significantly from the other varieties evaluated. Estimated lint loan values were similar to one another and only differed by $0.02 between the high of $0.54 and the low of $0.52. Estimated lint value was calculated based on the lint yield and lint loan value, it did not take in to account any productions costs.

Mean bur cotton and lint yields, gin turnout, lint loan value and lint value; means of three replications.

	Bur Cotton Yield	Lint Yield	Turnout		Lint Value Loan	Lint Value
Cotton Variety	lbs/ac	lbs/ac	%		$ per pound	$ per acre
PHY 485 WRF	3872.26	1050.30	0.27	b	0.52	544.01
DP 0935 B2RF	3880.16	1212.70	0.31	ab	0.53	640.76
PHY 375 WRF- AVICTA	3767.74	1094.00	0.29	ab	0.52	564.25
FM 1740 B2RF	3682.21	1228.30	0.33	a	0.53	650.21
FM 9058 F	3224.74	1005.70	0.31	ab	0.54	542.16
LSD ($P \leq 0.05$)	463.46	146.11	0.031		0.020	85.25
P>F	ns[1]	ns	0.03		ns	ns

1= not significantly different at P= 0.05, AOV. Means within a column followed by the same letter are not significantly different.

Acknowledgments:
The Terry-Yoakum IPM program express thanks to Mr. Tommy Mason for cooperation with this trial; providing the field, irrigation, crop management and harvesting. Phytogen Cotton DOW AgroSciences provided seed, seed treatments, harvest assistance, ginning and fiber analysis and financial support for this test. Gratitude is also given to Ms. Lauren Russell and Mr. Garrett Besler, field scouts who assisted with plant growth monitoring.

Development of a Binomial Sampling Plan to Estimate Thrips Populations in Cotton to Aid in IPM Decision Making

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Extension Entomologist- Cotton

Bo Kesey
Extension Program Specialist- Cotton Entomology

Grower Cooperators: Bryan and Kevin Bentley, Cliff Bingham, Richard Boozer, Klint Forbes, Chad Harris, Jerry and Aaron Vogler, Eric Seidenberger, Rodney Gully, Ricardo Aburto

Texas AgriLife Extension Service Cooperators: Mark Muegge, Megha Parajulee, Monti Vandiver, Warren Multer, Emilio Nino, Dustin Patman, Scott Russell and Kerry Siders; Extension Entomologist, Research Entomologist-Cotton, EA-IPM Bailey/Parmer Counties, EA-IPM Glasscock, Reagan and Upton Counties, EA-IPM Castro/Lamb Counties, EA-IPM Crosby County, EA-IPM Terry/Yoakum Counties, EA-IPM Hockley/Cochran Counties

Summary:

Thrips are problematic throughout much of the U.S. cotton belt and can negatively impact early-season cotton if curative action is not taken. In this study we compare two different methods (visual and cup) for sampling thrips on seedling cotton, and using these sampling methods we began the process of developing a binomial sampling plan. This study was conducted in a variety of locations across the Texas High Plains and far west Texas in commercial cotton fields. The sample data collected from both methods of sampling were used to determine how many cotton leaves were infested to mean thrips density relationship needed to develop the binomial sample plan using the following formula ($P(I)=1-e^{-m[LN(amb-1)/(amb-1-1)]}$). Taylor's power law effectively modeled the thrips sample data from both sample methods. Taylor's coefficients suggest that thrips nymphs tend to be more clumped than adult thrips, but neither appear to be highly clumped. This may be an artifact of small sample unit size. The relationship between the

P(I) cotton leaves and thrips mean density was also modeled well by using the method of Wilson and Room (1983). The relationship was similar for both sample methods and thrips age classes, thus both sample methods should perform equally well. However, additional data is needed to determine the relative cost reliability of each sample method and develop sample plans. This will be completed in 2010.

Objective:

To determine how many cotton leaves were infested to mean thrips density relationship needed to develop the binomial sample plan using the following formula ($P(I)=1-e^{m[LN(amb-1)/(amb-1-1)]}$) and determine which of the two sampling methods (visual or cup) was more effective.

Materials and Methods:

This study took place in a number of commercial cotton fields located across far west Texas and the Texas High Plains. Western flower thrips were sampled in each cotton field in an area at least 60 rows x 200 ft that was left untreated by foliar and/or preventative treatments for thrips.

Thrips at each location were counted from individual plants on a weekly basis from crop emergence to the 5 true leaf stage. Fifty sampling bouts per field were conducted for each sampling method. Each sampling bout consisted of three plants from the same location within the field.

The two sampling methods evaluated were conducted using two destructive sample methods (Figure 1); a visual and a 16oz plastic cup sampling method. Individual plants were removed from the soil by gently grasping the cotton stem at the soil line and pulling straight up. Then the cotton plant was either subjected to visual or the cup sample method. Visual inspection was accomplished using a sharpened pencil to pry apart folded or creased leaf tissue to expose hidden thrips then adults and nymphs were counted and recorded. The cup method was employed by inserting the cotton plant into the cup and shaken vigorously for several seconds to dislodge any thrips on the plant into the cup. Adult and nymph thrips dislodged into the cup were counted and recorded, then discarded.

Sample data from both methods was used to determine the proportion cotton leaves infested to mean thrips density relationship (Wilson and Room 1983) needed for development of the binomial sampling plan. With enough data, a binomial sequential sampling plan will be developed following procedures developed by Wilson and Room (1983a,b). The relationship of the mean and proportion of thrips infested cotton leaves will be determined by:

$$P(I)=1-e^{-m[LN(amb-1)/(amb-1-1)]}$$

where P(I)=the proportion of thrips infested leaves, a and b are parameters from Taylor's power law (1961), and m=the mean density at which a management decision is needed.

The variance component k of the negative binomial distribution will be determined:

$$k = m/(am^{(b-1)}-1)$$

where a and b are parameters from Taylor's power law (1961) and m is the threshold.

The threshold used in this study is 1 thrips per true leaf and is a nominal threshold as an economic threshold has yet to be established for western flower thrips in cotton.

Results and Discussion:

Taylor's power law effectively modeled the mean/variance relationship for total thrips for both sample methods, thrips age classes and pooled across age classes (Table 1). Interestingly, Taylor's a-coefficient was less than 1 regardless of age class or sample method. Wilson (1994) regards Taylor's values that are less than 1, as artifacts of curve fitting or random sample variability, which is likely the reason here. Regressing the observed P(I) cotton leaves on the estimated P(I) cotton leaves illustrate how well the method of Wilson and Room (1983a,b) modeled the relationship between mean adult and nymph thrips density and proportion thrips infested cotton leaves (Figure 1 A & B). This was true for both sampling methods, although the cup sample method appeared to provide a better fit than the visual sample method as evidenced by the greater variability explained by the model for the cup sample method relative to the visual sample method. This may have occurred because of the potential for greater sampler error associated with the visual method.

The effect of age class on thrips aggregation was evident for both sample methods. Immature thrips tend to hide in the terminals of the cotton plant and are less mobile than winged adults, thus it was not unexpected to find that nymphs, regardless of sample method, exhibited a more aggregated distribution than adults (Figure 2 A & B). Wilson and Room (1983a) reported similar findings for *Heliothis* spp. age classes. The estimated P(I) for the nominal ET of 1 thrips per leaf derived using the binomial model of Wilson and Room (1983a, b) for the cup and visual sample methods was 0.77 and 0.74 respectively. These values were determined from the pooled thrips data, although using adult thrips would provide similar results.

These preliminary results indicated that further analysis is needed to determine if pooling across thrips age classes should be used to determine the upper decision line for the SPRTs developed.

Acknowledgments:

Appreciation is expressed to Cotton Incorporated CORE Projects and in part by Plains Cotton Growers, Inc.

Table 1. a and b of Taylor's power law and coefficient of determination.			
Thrips age classes and Pooled age classes	a	b	R^2
Cup Sample Method			
Adult	0.6035	1.366	0.958
Nymph	0.7349	1.290	0.928
Pooled	0.6231	1.379	0.937
Visual Sample Method			
Adult	0.6873	1.397	0.963
Nymph	0.9436	1.3840	0.912
Pooled	0.7711	1.490	0.950

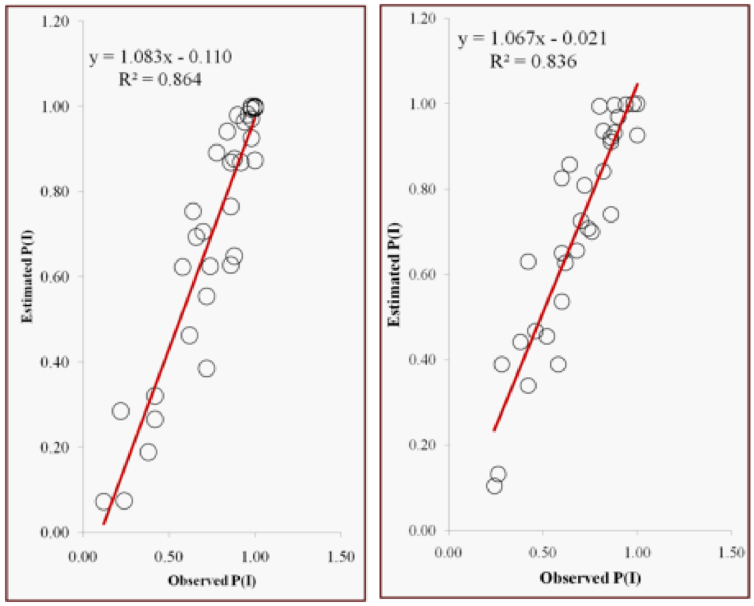

Figure 1. A) Cup sample method total thrips: relationship between observed and estimated P(I) cotton leaves; B) Visual sample method total thrips: relationship between observed and estimated P(I) cotton leaves.

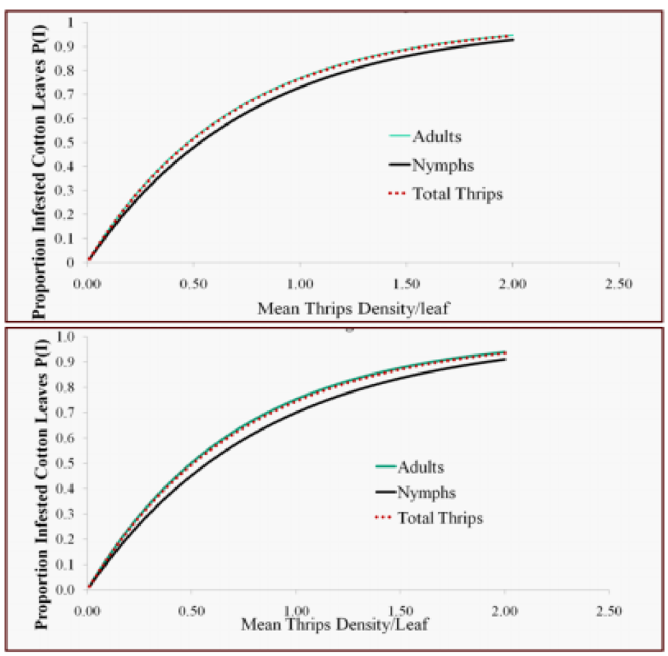

Figure 2. A) Cup sample and B) Visual sample methods: proportion of infested cotton leaves as a function of density for different thrips age classes and pooled across age classes.

Replication Plant Growth Regulator Performance on Cotton Demonstration, Seminole, TX - 2009

Cooperator: Michael Todd

Manda Cattaneo, Scott Russell, Mark Kelley, and Randy Boman,
EA-IPM Gaines County, EA-IPM Terry and Yoakum Counties, Extension Program Specialist II - Cotton, and Extension Agronomist - Cotton

Gaines County

Summary: No significant differences were observed for all yield, economic, and HVI fiber quality parameters measured (Tables 1 and 2). These data indicate that substantial differences are not obtained in terms of net value/acre due to plant growth regulator selection.

Objective: The objective of this project was to evaluate the performance of commercially available plant growth regulators (PGR) on a medium to tall cotton variety, FiberMax 9160B2F, in Gaines County.

Materials and Methods:

Treatments: 4 fl oz of Mepex, 4 fl oz of Mepex GinOut, 4 fl oz of Pentia, 2 fl oz of Stance

Soil Texture and pH: 84% sand, 5% silt, and 11% clay; pH of 7.8

Experimental design: Randomized complete block with 3 replications

Seeding rate: 3.5 seeds/row-ft in 38-inch row spacing

Plot size: 8 rows by variable length of field (552 - 1115 ft long)

Planting date: 15 May in terminated wheat

Irrigation: This location was under a LESA center pivot

Irrigation & Rainfall: Pre-bloom irrigation and rainfall totaled ~9.81 inches
Bloom to harvest rainfall totaled ~10.80 inches

Weed Management:	½ pt per acre Treflan banded on pre-plant and three application of Roundup in-season
Insecticides:	3 oz of Orthene applied early season
Fertlizer Management:	15 gallons of 10-34-0 preplant and 30 gallons of 28-0-0-5 in-season
Harvest Aides:	2 pts of Prep and 1 1/4 pt of Def
PGR applicaation:	The PGRs were applied on 7 July with flat fan nozzles and a spry volume of 10.4 gallons per acre.
Plant Mapping Results:	Plant height, number of nodes, and Nodes Above White Flower (NAWF) were counted on ten plants per plot on 24 July. There was no significant difference between treatments for these measurements.
Harvest:	Plots were harvested on 11-November using a commercial stripper harvester with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were subsequently 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 Texas Tech University - Fiber and Biopolymer Research Institute 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 $160/ton. Ginning costs did not include checkoff.
Seed and technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (3.0 seed/row-ft) for the 40-inch 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:

No significant differences were observed for all yield, economic, and HVI fiber quality parameters measured (Tables 1 and 2). These data indicate that substantial differences are not obtained in terms of net value/acre due to plant growth regulator selection. 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.

Acknowledgments:

Appreciation is expressed to Michael Todd for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by the Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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Table 1. Harvest results from the replicated plant growth regulator cotton demonstration, Michael Todd Farms, Seminole, TX, 2009.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Net value
	-------- % --------		------------- lb/acre -------------			$/lb	-- $/acre ---				
Mepex	34.0	50.2	3758	1279	1884	0.5662	724.35	188.42	912.77	112.73	800.04
Mepex_GinOut	33.9	49.6	3741	1271	1859	0.5605	712.30	185.84	898.15	112.23	785.92
Pentia	33.4	48.2	3671	1225	1768	0.5615	687.82	176.79	864.62	110.15	754.46
Stance	32.8	50.9	3636	1194	1849	0.5637	672.56	184.90	857.45	109.07	748.38
Untreated	32.7	49.3	3623	1184	1788	0.5662	670.24	178.84	849.09	108.70	740.38
CV, %	4.2	2.7	2.9	5.2	3.7	1.0	5.7	3.7	5.2	2.9	5.7
OSL	0.6885	0.2299	0.4647	0.3310	0.2766	0.6652	0.4174	0.2766	0.4222	0.4666	0.4482
LSD	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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. $160/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 replicated plant growth regulator cotton demonstration, Michael Todd Farms, Seminole, TX, 2009.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Mepex	3.6	37.0	81.2	29.6	7.0	2.3	82.8	6.6	2.3	1.0
Mepex GinOut	3.6	36.8	81.9	29.9	7.0	1.7	82.5	6.6	3.0	1.0
Pentia	3.7	36.4	81.0	29.2	6.9	2.7	82.2	6.7	3.0	1.0
Stance	3.8	36.5	81.4	29.0	6.8	2.7	82.0	6.9	2.7	1.0
Untreated	3.7	36.7	81.3	29.4	7.0	2.3	82.6	6.7	2.7	1.0
CV, %	3.6	1.0	1.1	0.6	3.3	27.1	0.8	3.6	--	--
OSL	0.3815	0.3688	0.3442	0.3189	0.6303	0.3640	0.5897	0.4722	--	--
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, †indicates significance at the 0.10 level, NS - not significant.

Screening Cotton Varieties for Resistance to Verticillium Wilt, Terry County 2009

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Cooperator: Ronald Jordan

Summary: Verticillium wilt, caused by the pathogen *Verticillium dahlia* Kleb., is a soilborne pest of cotton and peanut. While the fungus usually initiates infections early in the growing season, symptoms are often not expressed in the plant until later when there is an increased demand for water (boll formation and filling). Infected plants are unable to keep pace with the water demand due to the fungal growth within the vascular tissue of the plant. The Verticillium fungus clogs the xylem vessels blocking the flow of water to leaves and bolls resulting leaf death and boll drop. Texas AgriLife Extension and AgriLife Research have an active screening program to evaluate new cotton varieties for tolerance and resistance to Verticillium wilt.

Thirty-two cotton varieties were planted into a commercial cotton field with a history of verticillium wilt. Observations during the growing season included number of plants per foot of row, incidence of wilt on two occasions and defoliation. Results are presented in Tables 1 and 2 which follow.

Acknowledgements: Texas AgriLIFE Extension and Research wish to thank Ronald Jordan for his cooperation in this trial.

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Table. 1 Effect of cultivars on Verticillium wilt, defoliation, yield, and plant stand near Brownfield.

Cultivar [a]	$/acre[b]	Lbs of lint / acre	Incidence of wilt on		Defol-iation[c]	Plants/ Ft. row
			11 Aug.	31 Aug		
DP 1032B2RF	891	1,788	9.0	26.5	2.2	2.1
FM 9170B2F	882	1,764	5.5	13.7	1.3	2.9
FM 1740B2F	874	1,729	4.8	13.2	1.5	3.0
FM 1880B2F	870	1,667	4.8	8.0	1.6	2.6
NG 3348B2RF	870	1,696	4.2	7.1	1.4	2.9
FM 9180B2F	868	1,655	5.0	13.2	1.4	2.7
NG 8021RF	865	1,638	8.1	14.9	1.7	2.1
ST 4554B2F	865	1,737	5.7	10.6	2.0	2.9
FM 9160B2F	860	1,674	4.1	11.4	1.1	3.0
DP 174RF	844	1,690	4.3	15.8	2.1	3.1
FM 820F	830	1,668	5.3	12.2	1.7	3.0
DP 1044B2RF	826	1,609	7.2	14.1	1.9	3.0
AT Apex B2RF	825	1,653	5.5	15.6	2.3	3.1
DP 164B2RF	777	1,534	4.6	11.8	1.8	2.9
ST 5288B2F	776	1,687	8.1	15.6	1.8	2.9
AM 1532B2RF	775	1,627	6.0	19.1	2.2	2.9
FM 840B2F	767	1,564	9.4	20.7	2.1	2.8
ST 5458B2F	763	1,589	5.8	17.6	2.4	3.2
DP 0924B2RF	754	1,616	7.7	19.1	2.4	2.7
PG 485WRF	754	1,513	6.4	19.1	2.0	3.0
DP EXP	750	1,533	13.6	28.9	2.4	2.6
DP 1034B2RF	737	1,543	8.7	24.0	2.4	2.4
DP 161B2RF	725	1,484	7.6	21.1	2.1	2.4
DP 0935B2RF	717	1,675	7.4	11.9	2.3	2.6
PG 425RF	708	1,502	8.6	19.3	2.2	3.1
AT Titan B2RF	702	1,392	6.0	16.6	2.1	2.6
AT Patriot RF	702	1,433	6.5	15.8	2.0	2.8
PG 565WRF	690	1,530	5.6	18.7	2.3	2.5
AT Epic RF	681	1,519	7.1	23.2	2.6	2.4
AT Orbit RF	657	1,281	6.5	9.7	2.0	2.4
NG 723RF	651	1,366	8.8	27.3	2.2	1.3
DP 141B2RF	581	1,365	5.6	22.8	1.7	2.7
LSD (0.05)	67	130	6.5	8.1	0.2	0.4

[a]The cultivar abbreviations were:AT=All-Tex, AM=Americot, DP =Deltapine, FM = Fibermax, NG
= NexGen, PG = Phytogen, ST =Stoneville.
[b]$/acre = (lint yield/acre x loan value) – cost of seed and technology fees/acre. Seed and technology fee values were obtained from the Plains Cotton Grower's web site http://www.plainscotton.org [c]Defoliation ratings were made in approximately 22 locations/plot, with 0 = no defoliation, 1 = 1 to
32% defoliation, 2 = 33 to 67% defoliation, and 3 > 67% defoliation.

Table 2. Effect of cultivars on fiber properties in a test near Brownfield.

Cultivar[a]	Loan $/lb	Mic[b]	Length	Unif[c]	Strength	Elon[d]	Leaf	Rd	+b
AM 1532B2RF	0.519	3.00	1.115	80.5	28.50	9.0	2.0	81.7	7.5
AT Apex B2RF	0.540	3.40	1.110	80.4	27.15	9.1	2.5	80.4	7.7
AT Epic RF	0.487	2.75	1.075	80.7	30.15	9.9	1.5	80.9	8.3
AT Orbit RF	0.558	3.55	1.140	80.9	30.40	9.6	2.5	80.4	7.7
AT Patriot RF	0.530	3.35	1.135	80.6	29.80	9.4	3.0	80.6	7.6
AT Titan B2RF	0.553	3.60	1.150	81.9	29.90	8.6	3.0	80.5	6.8
DP EXP	0.534	3.27	1.117	80.7	28.77	8.8	2.0	82.3	7.8
DP 141B2RF	0.475	2.55	1.135	79.6	29.75	8.6	3.5	82.2	7.5
DP 161B2RF	0.534	3.30	1.150	81.9	30.25	8.1	2.0	81.0	7.4
DP 164B2RF	0.551	3.35	1.130	80.2	28.20	8.0	2.0	81.8	7.7
DP 174RF	0.534	3.25	1.105	81.0	28.50	8.8	3.0	80.4	7.6
DP 1032B2RF	0.537	3.30	1.120	81.1	30.20	8.6	3.0	81.5	7.5
DP 1034B2RF	0.523	3.10	1.105	80.7	28.30	9.4	2.0	82.7	7.8
DP 1044B2RF	0.556	3.50	1.125	80.8	29.95	9.5	2.5	80.9	7.8
DP 0924B2RF	0.510	3.25	1.085	81.3	28.95	9.1	3.0	80.3	7.4
DP 0935B2RF	0.469	2.70	1.055	79.0	28.50	8.9	1.5	81.3	8.4
FM 1740B2F	0.546	3.45	1.090	80.0	30.15	8.0	1.5	83.4	7.4
FM 1880B2F	0.564	3.85	1.140	81.1	30.50	8.1	2.5	80.4	7.1
FM 820F	0.534	3.30	1.180	81.6	33.10	7.2	2.0	81.6	7.0
FM 840B2F	0.535	3.45	1.105	80.9	30.25	8.5	2.5	82.3	7.3
FM 9160B2F	0.556	3.55	1.165	82.5	31.85	6.8	3.0	82.2	7.1
FM 9170B2F	0.540	3.20	1.150	80.4	30.80	7.2	1.5	84.7	7.0
FM 9180B2F	0.567	3.95	1.145	81.6	32.05	7.4	2.5	82.0	7.0
NG 3348B2RF	0.553	3.80	1.130	82.0	31.35	8.1	3.0	78.5	7.7
NG 723RF	0.518	3.05	1.125	81.0	29.95	8.9	2.5	80.8	8.3
NG 8021RF	0.563	3.65	1.095	81.7	30.85	9.2	2.0	80.9	8.2
PG 425RF	0.510	3.30	1.115	82.1	30.05	9.6	4.0	77.1	7.4
PG 485WRF	0.543	3.80	1.110	81.7	31.00	9.7	4.0	77.0	7.9
PG 565WRF	0.496	2.85	1.130	80.6	29.45	9.8	3.0	80.9	7.7
ST 4554B2F	0.538	3.40	1.110	81.1	29.30	10.2	3.5	79.9	8.2
ST 5288B2F	0.501	3.35	1.105	80.1	28.60	9.0	4.0	80.2	6.7
ST 5458B2F	0.524	3.30	1.100	80.0	30.00	8.4	3.0	78.6	8.0

[a]The cultivar abbreviations were: AT=All-Tex, Am=Americot, DP =Deltapine, FM = Fibermax, NG = NexGen, PG = Phytogen, ST =Stoneville.
[b]Micronaire

[c]Uniformity

[d]Elongation

Screening Cotton Varieties for Resistance to Fusarium Wilt, Terry and Yoakum Counties 2009

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Introduction

Fusarium wilt, caused by the soilborne fungus *Fusarium oxysporum* f. sp. *vasinfectum* (*Fov*), is an economically important disease in portions of west Texas. Infection of cotton (*Gossypium hirsutum*) by *Fov* is more severe when fields are co-infested with the root-knot nematode (*Meloidogyne incognita*) (2). Virulent populations of *Fov*, capable of inciting disease in the absence of *M. incognita*, have been identified in the United States (5); however, disease development in west Texas appears to reflect the classical Fusarium wilt-root-knot interaction (Woodward, personal observation). Management strategies for this disease complex consist of the use of nematicides, rotation with non-host crops, soil fumigation, and planting resistant cultivars. Nematicides do not directly impact *Fov*, but can negatively impact Fusarium wilt via reducing nematode damage (3). Likewise, crop rotation affects *M. incognita* more so than *Fov*, due to the ability of the fungus to survive saprophytically (8). Fumigation is effective at reducing Fusarium wilt damage (4); however, it has yet to be widely adopted. Varying levels of resistance to *Fov* and *M. incognita* (6,7) has been identified in some cultivars. Information regarding the performance of commercially available cultivars is limited (1). The objective of this work was to identify cotton cultivars currently being marketed in west Texas which are partially resistant to Fusarium wilt.

Materials and Methods

Field trials were conducted in Dawson, Gaines, Terry, and/or Yoakum counties during the 2008 and 2009 growing seasons (only Terry and Yoakum Counties, 2009 data presented here, edited by Scott A. Russell). These fields where known to be infested with *Fov* and have a history of Fusarium wilt. Trials consisted of 25-32 entries per location with a total of four replications. Trials were planted during the middle of May using a John Deere Maxx Emerge vacuum planter equipped with cones. The 2008 Dawson county trial, was replanted in early June due to poor stand establishment. No nematicides were used in any of the trials, and all management practices were at the discretion of the cooperating producer. Stand counts were determined approximately 28 days after planting and disease incidence was monitored throughout the season. Trials were harvested using a John Deere 484 modified with an internal basket equipped with load cells. Data were analyzed using PROC ANOVA in SAS, and means were separated using Fisher's Protected LSD ($P \leq 0.05$). The cultivars evaluated varied by trial, thus, trials were analyzed independently.

Results and Discussion

A severe Fusarium wilt epidemic was observed at the Yoakum County site in 2007. Field trials were established during the 2008 growing season; however, stands were lost due to extreme winds and blowing sand. A successful trial was conducted in 2009. Disease incidence at this location was much higher ranging from 5.7 to 83.2% with a mean of 32.9% (Table 1). Yields were negatively correlated with disease incidence (data not shown) and ranged from 100 to 1314 lb/A. Yields were lowest for Phytogen 375WRF, Phytogen 565WRF, Fibermax 1740B2F, Fibermax 1880B2F, and Fibermax 9063B2F. Yields were greatest for Stoneville 5458B2F, Stoneville 4288B2F, Stoneville 4498B2F and Deltapine 104B2RF. Likewise, returns ($/acre) were greatest for Stoneville 5458B2F, Stoneville 4288B2F, Stoneville 4498B2F followed by Deltapine 104B2RF.

Stunting, although sporadic, was observed throughout the 2009 Terry County trial; however, few plants exhibited classical Fusarium wilt symptoms (2). Despite no obvious differences in disease incidence yield results (Table 2) from this trial were similar to those observed in other trials. With yields being greatest for Deltapine 174RF, Stoneville 4288B2F, Stoneville 5458B2F, Stoneville 4498B2F and DP104B2RF and lowest for Phytogen 375WRF and Fibermax 1740B2F.

Fusarium wilt is a destructive disease that affects production fields on the Southern High Plains of west Texas. The interaction with *M. incognita* makes identifying resistant cultivars difficult;

however, several strategies that negatively impact the nematode indirectly affect Fusarium wilt. Results from this study are of value when choosing cultivars to plant in fields infested with *Fov*. Furthermore, the rapid development and release of new cotton cultivars necessitates the need for an active screening program.

Table 1. Final Fusarium wilt ratings and lint yields for cotton cultivars evaluated in Yoakum County, TX 2009

Cultivar[a]	Fusarium wilt (%)		Lint yield (lb/A)[b]		$/Acre[c]	
ST 5458B2F	13.8	ijklm[d]	1,314	a[d]	638	a[d]
ST 4288B2F	11.8	klm	1,149	ab	599	ab
ST 4498B2F	10.9	klm	949	bc	415	abc
DP 104B2RF	17.4	hijklm	841	bcd	337	bcd
PG 525WRF	14.6	ijklm	750	cde	305	cd
AM 1532B2RF	21.6	ghijklm	702	cdef	297	cd
ST 4554B2RF	5.7	m	678	cdefg	275	cde
DP 174RF	6.2	lm	621	cdefgh	271	cde
AM 1622B2RF	19.6	hijklm	613	cdefgh	264	cde
NG 3348B2RF	34.8	efghi	608	cdefgh	318	cd
AT Patriot RF	29.2	fghijk	530	defghi	151	cdef
DP 0935B2RF	39.9	cdefgh	528	defghi	260	cde
DP 141B2RF	29.0	fghijk	523	defghi	225	cdef
NG 4370B2RF	36.9	cdefgh	510	defghi	231	cdef
DP 164B2RF	33.7	efghij	506	defghi	224	cdef
DP 147B2RF	33.3	efghij	484	defghi	261	cde
NG 3410B2RF	32.1	fghijk	475	efghi	165	cdef
AT Apex B2RF	31.1	fghijk	433	efghij	155	cdef
ST 5288B2F	41.8	cdefg	409	efghij	101	def
DP 161B2RF	27.7	fghijkl	403	efghij	188	cdef
FM 9170B2F	34.6	efghi	385	fghij	110	def
DP 143B2RF	27.3	fghijklm	362	fghij	75	def
FM 9058B2F	48.8	bcdef	334	ghij	264	cde
AT Arid B2RF	35.0	efghi	321	ghij	185	cdef
DP 0949B2RF	57.3	bcd	313	hij	141	def
AT Titan B2RF	23.0	ghijklm	299	hij	93	def
DP 0924B2RF	38.7	cdefgh	274	hij	70	def
FM 9063B2F	58.9	bc	268	hij	142	def
FM 1880B2F	54.8	bcde	222	ij	241	cdef
FM 1740 B2F	65.3	ab	207	ij	74	def
PG 565WRF	36.6	defgh	193	ij	12	ef
PG 375WRF	83.2	a	100	j	-14	f

[a] Cultivar abbreviations include: DP = Deltapine, ST = Stoneville, NG = NexGen, PM = Paymaster, AT = All-Tex, AFD = Associated Farmers Delinting , AM = Americot, CG = Cropland Genetics, and PG = Phytogen. [b] Lint yield reflect the appropriate lint % from a 1000 g sub-sample. [c] Values are based on the gin turnout (% lint), fiber quality results obtained from HVI analysis, and seed and technology fees. [d] Data are the means from four replications. Means within a column followed by the same letter are not significantly different according to Fisher's Protected LSD ($P \leq 0.05$).

Table 2. Lint yields for cotton cultivars evaluated in Terry County, TX 2009[a]

Cultivar[b]	Lint yield (lb/A)[c]	
DP 174RF	629	a[d]
ST 4288B2F	628	a
ST 5458B2F	606	a
ST 4498 B2F	595	ab
DP 104 B2RF	591	ab
AM 1532 B2RF	574	abc
AT Patriot RF	554	abdc
FM 9180 B2F	553	abdc
PG 315RF	541	abdc
AM 2220 B2RF	522	abdc
DP 0920 B2RF	517	abdce
FM 9160 B2F	514	abdcef
FM 9058 B2F	500	abdcefg
ST 5288 B2F	493	abdcefg
NG 3410 B2RF	493	abdcefg
AT Epic RF	485	abdcefg
ST 4554 B2F	483	abdcefg
DP 141 B2RF	481	abdcefg
AM 1550B2RF	479	abdcefg
FM 9170 B2F	469	abdcefg
DP 164 B2RF	464	abdcefg
NG 3348 B2RF	435	bcdefgh
DP 0912 B2RF	421	cdefgh
PG 565WRF	407	cdefgh
DP 0935 B2RF	402	defgh
AT Orbit RF	400	defgh
AT Arid	391	defgh
DP 143B2RF	352	efgh
FM 1740B2F	352	efgh
BAYER EXP	349	fgh
NG 4370 B2RF	334	gh
PG 375WRF	294	h

[a] Disease incidence was low at this location and did not warrant ratings.
[b] Cultivar abbreviations include: DP = Deltapine, ST = Stoneville, NG = NexGen, PM= Paymaster, AT = All-Tex, AFD = Associated Farmers Delinting , AM = Americot, CG = Cropland Genetics, and PG = Phytogen.
[c] Lint yield reflect the appropriate lint % from a 1000 g sub-sample.
[d] Data are the means from four replications. Means within a column followed by the same letter are not significantly different according to Fisher's Protected LSD ($P \leq 0.05$).

Acknowledgements

This research was funded in part through a grant from the Cotton Incorporated Texas State Support Committee. The contributions of grower collaborators Jackie Burris, Shannon Patton is greatly appreciated. We thank Mitche Ratliff, Ira Yates, Brian Holliday, Evan Arnold, Justin Carthel, and Victor Mendoza for their technical assistance We also thank all of the seed companies that provided seed.

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Replicated Irrigated Cotton Variety Demonstration Under Root-Knot Nematode Pressure, Seminole, TX - 2009

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Gaines County

Summary: The varieties with the lowest nematode reproduction were NexGen 3348B2F with 2960 eggs, NexGen 2549B2F with 4000 eggs, Deltapine 174F with 4035 eggs, and All-Tex ApexB2F with 4311 eggs $500cm^3$ soil. Significant differences were observed for all yield and economic parameters, and most of the HVI fiber quality parameters measured. Lint turnout ranged from a low of 28.7% and a high of 37.0% for All-Tex ApexB2F and Dyna-Gro 2570B2F, respectively. Lint yields varied with a low of 1009 lb/acre (FiberMax 9180B2F) and a high of 1396 lb/acre (Deltapine 174F). Lint loan values ranged from a low of $0.5313/lb (NexGen 2549B2F) to a high of $0.5727/lb (FiberMax 9160B2F). Net value/acre among varieties ranged from a high of $766.41 (Deltapine 174F) to a low of $559.05 (FiberMax 9180B2F), a difference of $207.36. Staple averaged 35.26 across all varieties with a low of 33.1 for NexGen 2549B2F and a high of 36.6 for FiberMax 9160B2F. Percent uniformity ranged from a high of 82.5% for FiberMax 9160B2F and FiberMax 9180B2F to a low of 80.7% for Deltapine 0935B2F and All-Tex ApexB2F. Strength values averaged 30.3 g/tex with a high of 32.3 g/tex for FiberMax 9180B2F and a low of 28.6 g/tex for All-Tex ApexB2F. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

Objective: The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton varieties under nematode pressure in Gaines County.

Materials and Methods:

Varieties:	All-Tex ApexB2F, Deltapine 174F, DynaGro 2570B2F, FiberMax 9160B2F, FiberMax 1740B2F, FiberMax 9180B2F, Stoneville 5458B2F, Deltapine 0924B2F, Deltapine 0935B2F, NexGen 2549B2F, NexGen 3348B2F, Phytogen 375WF
Soil Texture and pH:	93% sand, 1% silt and 6% sand; pH of 7.6
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	3 seeds/row-ft in 40-inch row spacing
Plot size:	8 rows by variable length of field (833 - 2536 ft long)
Planting date:	19 May in terminated wheat
Irrigation:	This location was under a LESA center pivot
Irrigation & Rainfall:	Pre-bloom irrigation and rainfall totaled ~5.63 inches Bloom to harvest rainfall totaled ~8.15 inches
Insecticides:	No insecticides were applied
Weed Management:	1 pt of Caparol in early July and 3 applications of roundup in-season
Fertilizer Management:	200 lbs of 33-0-0-12
Plant Growth Regulators:	8 oz of pix early season
Harvest Aides:	1 qt of Prep and 2 oz of ET
Harvest:	Plots were harvested on 6 & 7-November using a commercial stripper harvester with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were subsequently 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 Texas Tech University - Fiber and Biopolymer Research Institute 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 $160/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3.0 seed/row-ft) for the 40-inch 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:

Nematode reproduction was measured by the number of nematode eggs per 500cm^3 soil (Table 1). The varieties with the lowest nematode reproduction were NexGen 3348B2F with 2960 eggs, NexGen 2549B2F with 4000 eggs, Deltapine 174F with 4035 eggs, and All-Tex ApexB2F with 4311 eggs.

Significant differences were observed for all yield and economic parameters, and most of the HVI fiber quality parameters measured (Tables 2 and 3). Lint turnout ranged from a low of 28.7% and a high of 37.0% for All-Tex ApexB2F and Dyna- Gro 2570B2F, respectively. Seed turnout ranged from a high of 53.3% for NexGen 2549B2F to a low of 44.6% for Deltapine 174F. Bur cotton yields averaged 3458 lb/acre with a high of 4034 lb/acre for Deltapine 174F, and a low of 3139 lb/acre for FiberMax 9180B2F. Lint yields varied with a low of 1009 lb/acre (FiberMax 9180B2F) and a high of 1396 lb/acre (Deltapine 174F). Lint loan values ranged from a low of $0.5313/lb (NexGen 2549B2F) to a high of $0.5727/lb (FiberMax 9160B2F). After adding lint and seed value, total value/acre for varieties ranged from a low of $705.33 for FiberMax 9180B2F to a high of $931.40 for Deltapine 174F. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $766.41 (Deltapine 174F) to a low of $559.05 (FiberMax 9180B2F), a difference of $207.36.

Micronaire values did not significantly differ. Staple averaged 35.26 across all varieties with a low of 33.1 for NexGen 2549B2F and a high of 36.6 for FiberMax 9160B2F. Percent uniformity ranged from a high of 82.5% for FiberMax 9160B2F and FiberMax 9180B2F to a low of 80.7% for Deltapine 0935B2F and All-Tex ApexB2F. Strength values averaged 30.3 g/tex with a high of 32.3 g/tex for FiberMax 9180B2F and a low of 28.6 g/tex for All-Tex ApexB2F. Elongation ranged from a high of 11.7% for Dyna-Gro 2570B2F to a low of 8.8% for FiberMax 9160B2F. There was no significant difference in leaf grades. Values for reflectance (Rd) and yellowness (+b) averaged 82.8 and 7.9, respectively. This resulted in color grades of 11s and 21s.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. 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.

Acknowledgments:

Appreciation is expressed to Gregory Upton for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by the Fiber and Biopolymer Research Institute, Texas Tech University.

Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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Table 1. Nematode reproduction from replicated nematode cotton variety demonstration, Gregory Upton Farms, Seminole, TX, 2009.

Entry	Nematode Reproduction Eggs per 500cm3 soil
DP 174F	4035
ST 5458B2F	8640
DG 2570B2F	7200
DP 0924B2F	11295
DP 0935B2F	11295
PHY 375WF	12800
FM 1740B2F	12040
FM 9160B2F	11480
NG 3348B2F	2960
NG 2549B2F	4000
AT Apex B2F	4311
FM 9180B2F	14560

Table 2. Harvest results from the replicated nematode cotton variety demonstration, Gregory Upton Farms, Seminole, TX, 2009

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 ----------					
DP 174F	34.6	44.6	4034	1396	1798	0.5645	787.58	143.82	931.40	121.02	43.96	766.41 a
ST 5458B2F	33.8	51.1	3946	1333	2017	0.5607	747.27	161.31	908.58	118.38	52.12	738.07 a
DG 2570B2F	37.0	51.5	3539	1310	1823	0.5693	745.43	145.81	891.24	106.16	50.78	734.30 a
DP 0924B2F	33.1	51.5	3708	1226	1910	0.5667	694.82	152.81	847.64	111.24	51.72	684.68 b
DP 0935B2F	36.3	49.4	3448	1249	1704	0.5547	692.07	136.35	828.42	103.44	51.72	673.26 b
PHY 375WF	35.6	49.6	3218	1144	1596	0.5663	648.69	127.71	776.40	96.53	50.76	629.11 c
FM 1740B2F	36.0	50.1	3143	1131	1575	0.5463	618.97	126.02	744.99	94.28	52.12	598.59 cd
FM 9160B2F	33.4	50.7	3222	1077	1634	0.5727	616.68	130.70	747.37	96.67	52.12	598.58 cd
NG 3348B2F	33.4	53.0	3186	1063	1687	0.5725	608.49	134.94	743.42	95.57	51.12	596.73 cd
NG 2549B2F	32.3	53.3	3351	1081	1786	0.5313	573.74	142.85	716.59	100.53	51.12	564.94 d
AT Apex B2F	28.7	51.4	3562	1021	1830	0.5612	572.82	146.40	719.21	106.85	50.70	561.66 d
FM 9180B2F	32.2	52.1	3139	1009	1635	0.5695	574.51	130.82	705.33	94.15	52.12	559.05 d
Test average	33.9	50.7	3458	1170	1750	0.5613	656.76	139.96	796.72	103.74	50.86	642.12
CV, %	3.9	4.6	3.7	3.7	3.6	2.3	3.6	3.6	3.5	3.7	--	3.8
OSL	<0.0001	0.0200	<0.0001	<0.0001	<0.0001	0.0250	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001
LSD	2.3	4.0	214	73	106	0.0219	40.01	8.50	46.94	6.42	--	41.61

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.
$160/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 3. HVI fiber property results from the replicated nematode cotton variety demonstration, Gregory Upton Farms, Seminole, TX, 2009.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
DP 174F	4.1	35.9	81.5	29.0	11.0	2.7	82.5	8.0	1.7	1.0
ST 5458B2F	4.1	35.1	81.1	31.6	10.0	3.0	80.9	8.6	2.0	1.0
DG 2570B2F	4.6	35.3	82.0	30.0	11.7	1.3	82.8	8.2	1.0	1.0
DP 0924B2F	4.2	35.2	81.9	30.6	11.0	1.7	82.8	8.1	1.3	1.0
DP 0935B2F	4.3	34.5	80.7	29.0	10.8	1.0	82.7	8.4	1.0	1.0
PHY 375WF	4.3	35.3	81.6	29.4	10.4	2.0	82.7	8.0	1.7	1.0
FM 1740B2F	4.5	34.1	80.8	30.0	10.3	1.3	83.8	7.7	1.0	1.0
FM 9160B2F	4.2	36.6	82.5	31.8	8.8	2.3	84.0	7.6	1.7	1.0
NG 3348B2F	4.3	35.8	82.2	31.5	10.0	2.0	81.6	7.6	2.3	1.0
NG 2549B2F	4.3	33.1	81.8	29.6	11.2	2.0	82.0	7.9	1.7	1.0
AT Apex B2F	3.9	35.7	80.7	28.6	10.9	2.0	83.4	8.0	1.3	1.0
FM 9180B2F	4.2	36.5	82.5	32.3	9.3	2.7	84.2	7.1	2.0	1.0
Test average	4.26	35.26	81.6	30.3	10.5	2.0	82.8	7.9	1.6	1.0
CV, %	5.5	1.6	0.9	2.1	3.8	43.7	0.8	3.0	--	--
OSL	0.1474	<0.0001	0.0471	<0.0001	<0.0001	0.2300	0.0001	<0.0001	--	--
LSD	NS	0.97	1.3	1.1	0.7	NS	1.1	0.4	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant.

Replicated Dryland Cotton Variety Demonstration,
Seminole, TX - 2009

Cooperator: Jud Cheuvront

Manda Cattaneo, Mark Kelley, Randy Boman, and Scott Russell
EA-IPM Gaines County, Extension Program Specialist II - Cotton, Extension Agronomist - Cotton, EA-IPM Terry and Yoakum Counties

Gaines County

Summary: This location was initially LESA irrigated for stand establishment. No subsequent irrigations were applied. Significant differences were observed for all yield, economic, and HVI fiber quality parameters measured. Lint turnout ranged from a low of 31.4% and a high of 38.5% for Deltapine 164B2F and All-Tex EpicF, respectively. Lint yields varied with a low of 426 lb/acre (Deltapine 164B2F) and a high of 557 lb/acre (All-Tex EpicF). Lint loan values ranged from a low of $0.5017/lb (FiberMax 1740B2F) to a high of $0.5683/lb (Deltapine 164B2F). Net value/acre among varieties ranged from a high of $285.92 (All-Tex EpicF) to a low of $209.19 (FiberMax 9180B2F), a difference of $76.73. Micronaire values ranged from a low of 4.0 for NexGen 3410F to a high of 4.8 for FiberMax 1740B2F. Staple averaged 34.2 across all varieties with a low of 32.0 for FiberMax 1740B2F and a high of 35.4 for Deltapine 164B2F. Percent uniformity ranged from a high of 81.1% for FiberMax 9160B2F to a low of 79.6% for FiberMax 1740B2F. Strength values averaged 29.1 g/tex with a high of 30.9 g/tex for FiberMax 9180B2F and a low of 27.4 g/tex for FiberMax 1740B2F. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

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

Materials and Methods:

Varieties:	All-Tex EpicF, Americot 1532B2F, Deltapine 174F, Deltapine 164B2F, Deltapine 0924B2F, DynaGro 2570B2F, FiberMax 1740B2F, FiberMax 9180B2F, FiberMax 9160B2F, NexGen 3348B2F, NexGen 3410F, Phytogen 375WF
Soil Texture and pH:	88% sand, 3% silt, and 9% clay; pH of 7.4
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	2.5 seeds/row-ft in 36-inch row spacing
Plot size:	6 rows by variable length of field (757 - 2243 ft long)
Planting date:	1 June
Irrigation:	This site was irrigated twice using LESA center pivot irrigation to aid in stand establishment, and no further irrigation was applied.
Irrigation & Rainfall:	Pre-bloom irrigation and rainfall totaled ~5.47 inches Bloom to harvest rainfall totaled ~2.05 inches
Insecticides:	Applied 5.0lbs/acre Temik in-furrow at planting.
Weed Management:	7 oz of Cotton Pro and 7 oz of Diuron were applied on 5 June. 40 oz of Glystar was applied on 25 June. 36 oz of Glyphosate was applied on 11 August.
Fertilizer Management:	20 Gallons per acre of 28-0-0-4 was coultered on in-between the rows at the end of June.
Harvest aids:	1 ½ pt of Boll Buster and 1 oz of Aim was applied on 23 October.
Harvest:	Plots were harvested on 10-November using a commercial stripper harvester with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were subsequently 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 Texas Tech University - Fiber and Biopolymer Research Institute 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 $160/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-inch 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 31.4% and a high of 38.5% for Deltapine 164B2F and All-Tex EpicF, respectively. Seed turnout ranged from a high of 54.7% for All-Tex EpicF to a low of 49.1% for FiberMax 9180B2F. Bur cotton yields averaged 1397 lb/acre with a high of 1520 lb/acre for FiberMax 1740B2F, and a low of 1320 lb/acre for Phytogen 375WF. Lint yields varied with a low of 426 lb/acre (Deltapine 164B2F) and a high of 557 lb/acre (All-Tex EpicF). Lint loan values ranged from a low of $0.5017/lb (FiberMax 1740B2F) to a high of $0.5683/lb (Deltapine 164B2F). After adding lint and seed value, total value/acre for varieties ranged from a low of $298.17 for FiberMax 9180B2F to a high of $368.77 for All-Tex EpicF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $285.92 (All-Tex EpicF) to a low of $209.19 (FiberMax 9180B2F), a difference of $76.73.

Micronaire values ranged from a low of 4.0 for NexGen 3410F to a high of 4.8 for FiberMax 1740B2F. Staple averaged 34.2 across all varieties with a low of 32.0 for FiberMax 1740B2F and a high of 35.4 for Deltapine 164B2F. Percent uniformity ranged from a high of 81.1% for FiberMax 9160B2F to a low of 79.6% for FiberMax 1740B2F. Strength values averaged 29.1 g/tex with a high of 30.9 g/tex for FiberMax 9180B2F and a low of 27.4 g/tex for FiberMax 1740B2F. Elongation ranged from a high of 11.6% for Dyna-Gro 2570B2F to a low of 9.0% for FiberMax 9160B2F. Leaf grades ranged from 1 to 3, with a test average of 1.6. Values for reflectance (Rd) and yellowness (+b) averaged 80.7 and 8.8, respectively. This resulted in color grades of mostly 11s and 21s.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. 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.

Acknowledgments:

Appreciation is expressed to Jud Cheuvront for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by the Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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Table 1. Harvest results from the replicated dryland cotton variety demonstration, Jud Cheuvront Farms, Seminole, TX, 2009

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 ----------						
AT EpicF	38.5	54.7	1447	557	791	0.5475	305.47	63.29	368.77	43.41	39.44	285.92	a
DG 2570B2F	35.1	51.5	1454	510	749	0.5408	275.99	59.94	335.93	43.61	47.02	245.30	b
FM 1740B2F	36.5	49.4	1520	555	750	0.5017	278.34	60.02	338.36	45.62	48.26	244.48	bc
NG 3348B2F	34.9	50.4	1448	504	730	0.5383	271.45	58.41	329.86	43.43	47.33	239.10	bcd
DP 174F	35.3	49.3	1333	471	657	0.5472	257.52	52.54	310.07	40.00	40.71	229.36	bcde
DP 0924B2F	34.1	51.0	1430	487	729	0.5348	260.35	58.34	318.69	42.89	47.89	227.91	bcde
NG 3410F	33.6	50.7	1351	453	685	0.5565	252.22	54.83	307.05	40.53	39.42	227.10	bcde
FM 9160B2F	34.8	50.1	1344	468	673	0.5507	258.23	53.81	312.04	40.32	48.26	223.45	cde
AM 1532B2F	32.8	51.8	1401	459	725	0.5543	254.29	58.03	312.32	42.04	47.33	222.94	de
PHY 375WF	36.0	49.9	1320	476	659	0.5253	249.89	52.69	302.58	39.61	47.00	215.97	e
DP 164B2F	31.4	53.5	1355	426	725	0.5683	242.32	57.96	300.28	40.65	47.05	212.58	e
FM 9180B2F	32.4	49.1	1357	440	667	0.5568	244.82	53.34	298.17	40.71	48.26	209.19	e
Test average	34.6	50.9	1397	484	712	0.5435	262.57	56.94	319.51	41.90	45.66	231.94	
CV, %	3.9	3.6	3.9	3.8	3.9	1.7	4.6	3.9	4.4	3.9	--	5.5	
OSL	0.0002	0.0250	0.0027	<0.0001	<0.0001	0.0250	0.0001	<0.0001	0.0001	0.0027	--	<0.0001	
LSD	2.3	3.1	91	31	47	0.0152	20.51	3.76	24.03	2.74	--	21.49	

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.
$160/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 replicated dryland cotton variety demonstration, Jud Cheuvront Farms, Seminole, TX, 2009.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
AT EpicF	4.5	34.3	80.6	29.3	11.0	1.0	80.9	9.3	1.0	1.0
DG 2570B2F	4.5	34.1	80.7	29.5	11.6	1.0	79.7	9.5	1.3	1.0
FM 1740B2F	4.8	32.0	79.6	27.4	10.6	1.0	80.7	8.6	1.7	1.0
NG 3348B2F	4.4	33.8	80.9	29.4	9.8	2.7	80.0	8.5	2.0	1.0
DP 174F	4.4	34.4	80.4	28.2	10.6	1.3	79.9	8.8	2.0	1.0
DP 0924B2F	4.6	33.9	80.7	29.5	11.1	1.0	80.2	9.2	1.7	1.0
NG 3410F	4.0	34.7	80.8	30.2	10.0	3.0	79.2	8.7	2.3	1.0
FM 9160B2F	4.3	34.4	81.1	29.9	9.0	1.3	82.1	8.4	1.3	1.0
AM 1532B2F	4.3	34.6	80.7	27.4	10.7	1.7	81.5	8.8	1.0	1.0
PHY 375WF	4.6	33.4	80.2	28.4	10.6	2.0	80.3	9.2	2.0	1.0
DP 164B2F	4.3	35.4	80.5	29.7	9.7	1.0	81.5	8.7	1.3	1.0
FM 9180B2F	4.6	34.8	80.8	30.9	9.8	1.7	82.6	8.1	1.3	1.0
Test average	4.4	34.2	80.6	29.1	10.4	1.6	80.7	8.8	1.6	1.0
CV, %	2.1	1.0	0.5	1.9	2.9	44.6	0.7	3.4	--	--
OSL	<0.0001	<0.0001	0.0303	<0.0001	<0.0001	0.0153	<0.0001	0.0003	--	--
LSD	0.2	0.6	0.7	0.9	0.5	1.2	0.9	0.5	--	--

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant.

Replicated Irrigated Cotton Variety Demonstration,
Loop, TX - 2009

Cooperator: Ricky Mills

Manda Cattaneo, Mark Kelley, Randy Boman, and Scott Russell
EA-IPM Gaines County, Extension Program Specialist II - Cotton, Extension Agronomist - Cotton, EA-IPM Terry and Yoakum Counties

Gaines County

Summary: Significant differences were observed for most of the yield, economic and HVI fiber quality parameters measured. Lint turnout was significant at the 0.10 probability level and ranged from a low of 26.3% and a high of 31.3% for NexGen 3348B2F and Deltapine 164B2F, respectively. Lint yields varied with a low of 823 lb/acre (FiberMax 9160B2F) and a high of 1183 lb/acre (Deltapine 174F). Lint loan values did not significantly differ. Net value/acre among varieties ranged from a high of $611.68 (Deltapine 174F) to a low of $294.98 (NG3348B2F), a difference of $316.70. Micronaire values ranged from a low of 3.2 for NexGen 2549B2F to a high of 4.4 for Deltapine 0935B2RF, Deltapine 164B2F, and Phytogen 375WRF. Staple averaged 35.2 across all varieties with a low of 33.0 for NexGen 2549B2F and a high of 36.4 for FiberMax 9160B2F. Strength values averaged 29.2 g/tex with a high of 31.0 g/tex for FiberMax 9180B2F and a low of 26.8 g/tex for All-Tex ApexB2F. Elongation ranged from a high of 9.5% for Dyna-Gro 2570B2F to a low of 6.4% for FiberMax 9160B2F. Leaf grades were relatively high with a range of 1 to 5, with a test average of 3.1. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

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

Materials and Methods:

Varieties: All-Tex Apex B2F, Deltapine 174F, Deltapine 164B2F, Deltapine 0935B2F, DynaGro 2570B2F, FiberMax 9160B2F, FiberMax 9170, FiberMax 9180B2F, NexGen 2549B2F, NexGen 3348B2F, Phytogen 375WF

Field Soil Texture and pH:	93% sand, 3% silt, and 4% clay; pH of 7.9
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	3 seeds/row-ft in 40-inch row spacing
Plot size:	8 rows by variable length of field (0.42 - 2.06 acre)
Planting date:	6 May in terminated wheat
Irrigation:	This location was under a LESA center pivot
Irrigation & Rainfall:	Pre-bloom irrigation and rainfall totaled ~6.71 inches Bloom to harvest rainfall totaled ~10.38 inches
Insecticides:	Temik was applied infurrow at planting at 3.5 lbs/acre
Weed Management:	Field was treated with Treflan at 1 1/3 pt broadcast pre-plant and 1 1/3 pt banded on at planting. 2 roundup applications during the season.
Fertilizer Management:	48 units phosphate and 120 units of Nitrogen
Plant Growth Regulators:	At pinhead square applied 2 oz Mepex
Harvest Aides:	First application: 1 pt of Def and 1 pt of Prep. Second application: 12.8 oz of Gramoxone
Harvest:	Plots were harvested on 20 October using a commercial stripper harvester. Harvested material was transferred to a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were subsequently 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 Texas Tech University - Fiber and Biopolymer Research Institute 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 $160/ton. Ginning costs did not include checkoff.
Seed and technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (3 seed/row-ft) for the 40-inch 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 most of the yield, economic and HVI fiber quality parameters measured (Tables 1 and 2). Lint turnout was significant at the 0.10 probability level and ranged from a low of 26.3% and a high of 31.3% for NexGen 3348B2F and Deltapine 164B2F, respectively. Seed turnout ranged from a high of 44.0% for FiberMax 9160B2F to a low of 39.9% for Deltapine 174F. Bur cotton yields were significant at the 0.10 probability level and averaged 3392 lb/acre with a high of 4013 lb/acre for Deltapine 174F, and a low of 2971 lb/acre for FiberMax 9160B2F. Lint yields varied with a low of 823 lb/acre (FiberMax 9160B2F) and a high of 1183 lb/acre (Deltapine 174F). Lint loan values did not significantly differ. After adding lint and seed value, total value/acre for varieties ranged from a low of $449.12 for NexGen 3348B2F to a high of $776.03 for Deltapine 174F. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $611.68 (Deltapine 174F) to a low of $294.98 (NG3348B2F), a difference of $316.70.

Micronaire values ranged from a low of 3.2 for NexGen 2549B2F to a high of 4.4 for Deltapine 0935B2RF, Deltapine 164B2F, and Phytogen 375WRF. Staple averaged 35.2 across all varieties with a low of 33.0 for NexGen 2549B2F and a high of 36.4 for FiberMax 9160B2F. Percent uniformity did not significantly differ. Strength values averaged 29.2 g/tex with a high of 31.0 g/tex for FiberMax 9180B2F and a low of 26.8 g/tex for All-Tex ApexB2F. Elongation ranged from a high of 9.5% for Dyna-Gro 2570B2F to a low of 6.4% for FiberMax 9160B2F. Leaf grades were relatively high with a range of 1 to 5, with a test average of 3.1. Values for reflectance (Rd) and yellowness (+b) averaged 80.2 and 7.9, respectively. This resulted in color grades of 21s and 31s.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. 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.

Acknowledgments:

Appreciation is expressed to Ricky Mills for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by the Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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

Table 1. Harvest results from the replicated irrigated cotton variety demonstration, Ricky Mills Farms , Loop TX, 2009

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 --						
DP 174F	29.5	39.9	4013	1183	1601	0.5477	647.93	128.09	776.03	120.38	43.96	611.68	a
DP 164B2F	31.3	46.0	3458	1081	1588	0.5698	616.35	127.08	743.43	103.73	50.82	588.88	a
DG 2570B2F	29.7	46.1	3402	1010	1567	0.5542	558.68	125.40	684.08	102.05	50.78	531.25	ab
PHY 375WF	30.2	42.0	3324	1004	1394	0.5572	559.05	111.55	670.60	99.73	50.76	520.11	ab
AT Apex B2F	27.1	42.5	3612	979	1534	0.5587	547.85	122.70	670.54	108.37	50.70	511.48	abc
DP 0935B2F	30.5	42.0	3344	1018	1406	0.5363	549.00	112.46	661.45	100.32	51.72	509.42	abc
FM 9170B2F	29.3	42.6	3170	928	1351	0.5652	524.09	108.09	632.18	95.10	52.12	484.95	abc
FM 9180B2F	27.1	44.7	3369	912	1506	0.5653	515.45	120.51	635.96	101.08	52.12	482.75	abc
FM 9160B2F	27.7	44.0	2971	823	1309	0.5335	438.72	104.70	543.42	89.13	52.12	402.17	bcd
NG 2549B2F	27.0	45.4	3212	866	1456	0.4642	402.15	116.48	518.63	96.36	51.12	371.15	cd
NG 3348B2F	26.3	45.7	3434	904	1571	0.3988	323.48	125.64	449.12	103.02	51.12	294.98	d
Test average	28.7	43.7	3392	973	1480	0.5319	516.61	118.43	635.04	101.75	50.67	482.62	
CV, %	7.1	2.7	9.7	9.4	9.5	13.9	16.5	9.5	13.8	9.7	--	17.6	
OSL	0.0774	<0.0001	0.0948	0.0058	0.1833	0.1955	0.0064	0.1836	0.0066	0.0948	--	0.0068	
LSD	2.9	2.0	462	156	NS	NS	145.40	NS	149.44	13.86	--	144.77	

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.
$160/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 replicated irrigated cotton variety demonstration, Ricky Mills Farms , Loop TX, 2009.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
DP 174F	4.0	35.6	80.3	28.1	8.8	3.7	79.5	7.8	3.0	1.0
DP 164B2F	4.4	35.6	80.8	29.3	7.9	1.7	81.7	7.8	2.0	1.0
DG 2570B2F	4.2	34.5	80.9	29.3	9.5	2.3	80.5	8.4	2.0	1.0
PHY 375WF	4.4	34.7	81.1	28.0	8.3	2.3	79.8	8.2	2.3	1.0
AT Apex B2F	4.2	35.2	80.4	26.8	8.5	2.7	80.6	8.2	2.3	1.0
DP 0935B2F	4.4	33.7	80.1	28.0	8.6	1.7	81.0	8.4	2.0	1.0
FM 9170B2F	3.8	36.1	80.8	30.9	7.4	3.0	81.6	7.3	2.3	1.0
FM 9180B2F	3.7	36.1	81.1	31.0	7.6	3.0	81.0	7.3	2.7	1.0
FM 9160B2F	3.7	36.4	81.3	30.3	6.4	4.3	80.3	7.5	2.7	1.0
NG 2549B2F	3.2	33.0	80.6	29.7	8.7	5.0	77.4	7.9	3.0	1.0
NG 3348B2F	3.7	35.9	81.3	29.3	8.1	4.7	78.6	7.8	3.0	1.0
Test average	4.0	35.2	80.8	29.2	8.2	3.1	80.2	7.9	2.5	1.0
CV, %	5.2	1.9	0.7	1.9	3.5	34.3	1.0	2.6	--	--
OSL	<0.0001	<0.0001	0.2297	<0.0001	<0.0001	0.0081	<0.0001	<0.0001	--	--
LSD	0.3	1.1	NS	0.9	0.5	1.8	1.4	0.3	--	--

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, † indicates significance at the 0.10 level, NS - not significant.

Replicated Irrigated Cotton Variety Demonstration,
Seminole, TX - 2009

Cooperator: Gregory Upton

Manda Cattaneo, Mark Kelley, Randy Boman, and Scott Russell
EA-IPM Gaines County, Extension Program Specialist II - Cotton, Extension Agronomist - Cotton, EA-IPM Terry and Yoakum Counties

Gaines County

Summary: Significant differences were observed for all yield and economic and most HVI fiber quality parameters measured. Lint turnout ranged from a low of 32.5% and a high of 36.9% for NexGen 3348B2F and Deltapine 0935B2F, respectively. Lint yields varied with a low of 1140 lb/acre (NG3348B2F) and a high of 1367 lb/acre (Phytogen 375WF). Lint loan values ranged from a low of $0.5555/lb (NexGen 2549B2F) to a high of $0.5698/lb (Deltapine 174F). Net value/acre among varieties ranged from a high of $754.84 (Deltapine 174F) to a low of $636.61 (NG2549B2F), a difference of $118.23. Micronaire values ranged from a low of 4.0 for FiberMax 9160B2F and NexGen 2549B2F to a high of 4.6 for Deltapine 0924B2RF. Staple averaged 35.4 across all varieties with a low of 34.2 for Deltapine 0935B2F and a high of 36.5 for FiberMax 9180B2F and FiberMax 9160B2F. Percent uniformity ranged from a high of 82.5% for NexGen 3348B2F to a low of 80.7% for Phytogen 375WF. Strength values averaged 29.1 g/tex with a high of 31.2 g/tex for FiberMax 9180B2F and a low of 27.8 g/tex for Deltapine 0935B2F. These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection.

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

Materials and Methods:

Varieties: All-Tex Apex B2F, Deltapine 174F, Deltapine 0935B2F, Deltapine 0924B2F DynaGro 2570B2F, FiberMax 9160B2F, FiberMax 1740B2F, FiberMax 9180B2F, NexGen 2549B2F, NexGen 3348B2F, Phytogen 375WF

Soil Texture and pH:	91% sand, 1% silt, and 8% clay; pH of 7.8
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	3 seeds/row-ft in 40-inch row spacing
Plot size:	8 rows by variable length of field (1863 - 2625 ft long)
Planting date:	18 May in terminated wheat
Irrigation:	This location was under a center pivot
Irrigation & Rainfall:	Pre-bloom irrigation and rainfall totaled ~5.63 inches Bloom to harvest rainfall totaled ~8.15 inches
Insecticides:	No insecticides were applied
Weed Management:	1 pt of Caparol in early July and 3 applications of roundup in-season
Fertilizer Management:	200 lbs of 33-0-0-12
Plant Growth Regulators:	8 oz of pix early season
Harvest Aides:	1 qt of Prep and 2 oz of ET
Harvest:	Plots were harvested on 5 & 6-November using a commercial stripper harvester with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were subsequently 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 Texas Tech University - Fiber and Biopolymer Research Institute 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 $160/ton. Ginning costs did not include checkoff.
Seed and technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (4.0 seed/row-ft) for the 40-inch 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 and economic and most HVI fiber quality parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 32.5% and a high of 36.9% for NexGen 3348B2F and Deltapine 0935B2F, respectively. Seed turnout ranged from a high of 52.7% for NG2549B2F to a low of 47.9% for Deltapine 174F. Bur cotton yields averaged 3636 lb/acre with a high of 3789 lb/acre for Deltapine 0924B2F, and a low of 3421 lb/acre for FiberMax 9180B2F. Lint yields varied with a low of 1140 lb/acre (NG3348B2F) and a high of 1367 lb/acre (Phytogen 375WF). Lint loan values ranged from a low of $0.5555/lb (NexGen 2549B2F) to a high of $0.5698/lb (Deltapine 174F). After adding lint and seed value, total value/acre for varieties ranged from a low of $790.81 for NexGen 2549B2F to a high of $918.58 for Dyna-Gro 2570B2F. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $754.84 (Deltapine 174F) to a low of $636.61 (NG2549B2F), a difference of $118.23.

Micronaire values ranged from a low of 4.0 for FiberMax 9160B2F and NexGen 2549B2F to a high of 4.6 for Deltapine 0924B2RF. Staple averaged 35.4 across all varieties with a low of 34.2 for Deltapine 0935B2F and a high of 36.5 for FiberMax 9180B2F and FiberMax 9160B2F. Percent uniformity ranged from a high of 82.5% for NexGen 3348B2F to a low of 80.7% for Phytogen 375WF. Strength values averaged 29.1 g/tex with a high of 31.2 g/tex for FiberMax 9180B2F and a low of 27.8 g/tex for Deltapine 0935B2F. Elongation ranged from a high of 10.0% for Dyna-Gro 2570B2F to a low of 7.2% for FiberMax 9160B2F. There was no significant different in leaf grades. Values for reflectance (Rd) and yellowness (+b) averaged 82.2 and 7.9, respectively. This resulted in color grades of mostly 11s and 21s.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. 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.

Acknowledgments:

Appreciation is expressed to Gregory Upton for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by the Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

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Table 1. Harvest results from the replicated irrigated cotton variety demonstration, Gregory Upton Farms, Seminole, TX, 2009

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 --						
DP 174F	36.3	47.9	3714	1348	1780	0.5698	767.83	142.40	910.23	111.42	43.96	754.84	a
DG 2570B2F	36.1	50.6	3767	1360	1907	0.5633	766.00	152.59	918.58	113.00	50.78	754.81	a
PHY 375WF	36.5	48.6	3747	1367	1823	0.5567	760.75	145.84	906.59	112.42	50.76	743.41	a
DP 0935B2F	36.9	48.8	3680	1357	1795	0.5470	742.67	143.61	886.28	110.39	51.72	724.17	ab
FM 1740B2F	35.7	49.2	3676	1314	1808	0.5645	741.60	144.68	886.28	110.27	52.12	723.89	ab
AT Apex B2F	33.7	51.6	3713	1250	1916	0.5667	708.51	153.28	861.79	111.39	50.70	699.70	bc
DP 0924B2F	33.8	50.7	3789	1281	1919	0.5500	704.38	153.49	857.87	113.66	51.72	692.49	bc
FM 9160B2F	33.8	50.0	3546	1200	1773	0.5693	683.16	141.87	825.03	106.37	52.12	666.54	cd
FM 9180B2F	33.6	51.6	3421	1149	1764	0.5737	658.97	141.16	800.13	102.62	52.12	645.39	d
NG 3348B2F	32.5	52.1	3513	1140	1830	0.5687	648.50	146.44	794.94	105.39	51.12	638.43	d
NG 2549B2F	33.9	52.7	3436	1163	1812	0.5555	645.86	144.95	790.81	103.09	51.12	636.61	d
Test average	34.8	50.3	3636	1266	1830	0.5623	711.66	146.39	858.05	109.09	50.75	698.21	
CV, %	3.8	1.6	2.7	2.7	2.7	1.7	3.4	2.7	3.2	2.7	--	3.6	
OSL	0.0041	<0.0001	0.0006	<0.0001	0.0037	0.0363	<0.0001	0.0037	<0.0001	0.0006	--	<0.0001	
LSD	2.2	1.4	168	59	84	0.0162	40.83	6.75	46.69	5.03	--	42.28	

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.
$160/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 replicated irrigated cotton variety demonstration, Gregory Upton Farms, Seminole, TX, 2009.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
DP 174F	4.1	36.0	81.4	28.1	9.2	1.3	81.7	8.1	2.0	1.0
DG 2570B2F	4.4	35.0	81.0	28.7	10.0	1.0	82.1	8.1	2.0	1.0
PHY 375WF	4.3	35.0	80.7	28.2	8.8	1.0	81.9	8.4	1.7	1.0
DP 0935B2F	4.5	34.2	81.0	27.8	8.8	1.3	82.6	8.3	1.7	1.0
FM 1740B2F	4.4	35.3	80.8	29.2	8.3	1.3	82.8	7.4	2.0	1.0
AT Apex B2F	4.2	35.9	81.5	28.8	8.6	1.3	82.2	8.0	2.0	1.0
DP 0924B2F	4.6	34.7	81.5	29.0	9.2	2.0	81.2	7.7	2.7	1.0
FM 9160B2F	4.0	36.5	80.7	29.1	7.2	1.3	82.7	7.4	2.0	1.0
FM 9180B2F	4.2	36.5	82.2	31.2	7.9	1.0	83.9	7.5	1.7	1.0
NG 3348B2F	4.1	36.3	82.5	30.6	8.6	2.3	80.9	8.0	2.3	1.0
NG 2549B2F	4.0	34.5	81.8	29.9	9.8	2.3	82.0	7.9	2.0	1.0
Test average	4.3	35.4	81.4	29.1	8.8	1.5	82.2	7.9	2.0	1.0
CV, %	4.2	1.8	0.6	2.7	6.6	43.7	0.8	2.5	--	--
OSL	0.0140	0.0011	0.0011	0.0007	0.0005	0.1266	0.0028	<0.0001	--	--
LSD	0.3	1.1	0.8	1.3	1.0	NS	1.2	0.3	--	--

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant.

Non-replicated FiberMax Cotton Variety Trial
Seagraves, TX - 2009

Cooperator: Larry Nelson

Scott Russell, Extension Agent - IPM Terry and Yoakum Counties and
Manda Cattaneo, Extension Agent - IPM Gaines County

Yoakum County

Table 1. Harvest results from the FiberMax Irrigated Cotton Variety Trial (1 replication), Jud Cheuvront Farms , Seminole, TX, 2009.

Variety	Lint Yielc (lbs/A)	Yield Rank	Percent Turnout	Mic	Staple	Strength	Unif	Loan Value* (¢/lb)	Value / A ($/A)
ST 4288B2F	1935	1	35.5%	4.60	37	30.5	83.9	54.15	$1,048
FM 9170B2F	1785	2	37.8%	3.84	39	33.9	82.5	54.20	$967
ST 4498B2RF	1702	3	34.4%	3.32	38	32.6	83.0	52.30	$890
FM 1740B2F	1690	4	37.1%	4.16	37	30.1	82.8	54.00	$913
FM 9160B2F	1634	5	37.2%	3.95	37	31.7	83.1	54.20	$886
DP 0935 B2RF	1631	6	38.3%	3.88	35	29.3	81.8	53.05	$865
ST 5458B2RF	1628	7	34.5%	3.44	37	32.4	81.2	52.10	$848
DP 0924 B2RF	1609	8	35.8%	3.61	37	32.0	83.5	54.15	$871
FM 9180B2F	1598	9	36.1%	4.53	38	31.4	83.2	54.05	$864
BCSX 1010B2F	1440	10	33.2%	3.40	37	30.7	82.3	52.10	$750

* Loan Value based on 2009 CCC Loan Schedule using a uniform color grade of 41 and leaf grade of 4.

Non-replicated Bayer Cotton Agronomic Performance Trial, 2009

Terry County

Cooperator: Glenn Waters

Variety	Lint Yield (lbs/A)	Gin Turnout	Mic	Length (in.)	Unif	Stren (g/tex)	Loan Value* (¢/lb)	Value/A ($/A)
ST 4498B2RF	1297	31.8%	4.3	1.10	82.8	29.9	53.35	$692
ST 5458B2RF	1288	29.4%	4.6	1.07	80.8	28.9	52.00	$670
ST 4288B2F	1207	26.2%	4.7	1.11	82.2	29.2	53.40	$644
DP 0924 B2RF	1172	29.6%	4.4	1.06	82.1	27.8	52.00	$610
DP 0935 B2RF	1152	32.3%	4.1	1.09	80.0	28.5	53.05	$611
ST 5288B2F	1125	33.6%	4.6	1.12	81.3	28.0	53.40	$601
FM 9160B2F	1061	31.0%	4.1	1.15	82.5	30.0	54.00	$573
FM 9170B2F	1060	31.9%	4.0	1.15	81.4	29.1	53.55	$568
FM 1740B2F	1016	31.0%	4.2	1.06	79.7	27.9	52.15	$530
FM 9180B2F	995	28.2%	4.0	1.14	82.9	30.6	54.20	$539

Loan Value based on 2009 CCC Loan Schedule using a uniform color grade of 41 and leaf grade of 4. Pivot Irrigated Trial Planting date May 12, 2009.

Developing a Sampling Protocol and Economic Threshold for Pod Rot of Peanut

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Manda Cattaneo; Extension Agent-IPM, Gaines County

Cooperators: Mr. Jimbo Grissom and Mr. Tommy Mason

Summary:

The scouting protocol portion of this trial intensely monitored two area peanut fields by sampling 101 random locations weekly. At each location, the sample consisted of 1.5 row feet of peanut pegs and pods. Peg rot was first observed in the Gaines County field 6 July 2009; in the Terry County field 26 July. The incidence of pod rot increased in both field through mid-August, reaching highs between 8 and 10 percent. From late July through 10 August, pod rot was severe when present. However, the next week, when disease had peaked for the summer, pod rot was a mixture of severely rotted and superficially rotted pods. From that point forward, most of the new infections appeared superficial, and most of the severely rotted pods were from old infections. Fungicide applications were applied in the Mason Field, Terry County, based on the grower's practice or one of three thresholds. These thresholds were two to three percent infestation as a low threshold, four to five percent as a medium threshold and six percent for a high threshold. The grower based treatment and the medium threshold each received two chemical applications, while the low threshold received three treatments and the high threshold only received one treatment. Chemicals utilized in the treatments were Abound FL or Ridomil Gold plus Provost. Pod rot protection was best with the producer timed application (the earliest that went out) and the low threshold treatment. The delay in the first application was

associated with poorer control. Plots were dug and inverted on 16 October. Plots were harvested on 28 October 2009. An analysis was done comparing the seven fungicide treatments with pod rot, averaged from 29 July through 23 August, yield, percentage of extra large kernels, grade, percentage of damaged kernels, and value of the crop (minus fungicide costs) per acre. There were significant differences between treatments in some grade categories and in yield. However, when chemical costs were subtracted from the value per acre, there were no significant differences.

Objective:

Pod rot of peanut is significant disease in the Texas South Plains. Producers and crop consultants have listed it as a major problem. Pod rot is difficult and time consuming to scout for, due to its clumped occurrence in fields. Producers who have a history of pod rot will make chemical treatments based on the calendar. The first objective of this project was to determine the optimal number of samples to collect in a peanut field to best describe the extent of peanut pod rod infestation. The second objective is to develop an economic threshold for peanut pod rot in the Texas South Plains region.

Materials and Methods:

Sampling Protocol

Two fields with a history of pod rot were scouted at weekly intervals, starting on 6 July 2009 (Grissom field, Gaines County) and 15 July 2009 (Mason field, Terry County). At each sampled point, 1.5 ft. of row was dug, and if any pods or pegs were found with symptoms of rot, then all the pegs and pods were counted, and any pegs or pods with discoloration were transported back to the laboratory for counting and fungal isolation. The percentage of symptomatic pegs and pods was determined for each sampling location. As the peanuts shifted to having more pods than pegs, eventually only pods with symptoms were counted and pegs were not. Sampling continued through mid-September.

At the Grissom field, 101 points were selected at random each week within the 120-acre field for sampling. At the Mason field, seven chemical treatments were imposed over a 168-row study area. Within this area, there were three replications of each treatment. This field was planted in a circular row pattern, on one-fourth of the pivot (30 acres), therefore plot lengths were not the same. A total of 101 random points were selected each week for evaluation in the test area, with a minimum of 3 to a maximum of 7 points within each 8-row plot. As the plots got longer, more points were sampled per plot.

Developing an Economic Threshold for Pod Rot of Peanut

Chemical applications to aid in developing an economic threshold for pod rot of peanut were conducted on the Mason field in Terry County. Plots were eight rows wide and of varying lengths, due to the circular row pattern. The timing of chemical applications involved seven treatments, based on either a calendar application or a trigger based on the percent infected pods.

The fungicide treatments were as follows:

AA: Abound FL applied twice at the producer's normal time (based on a calendar schedule)

RR: Ridomil Gold EC **+** Provost applied twice at the producer's normal time (calendar schedule)

AR: Abound FL applied once and Ridomil Gold EC **+** Provost applied once (calendar schedule)

LT: Low threshold, RR applied 3 times based on a threshold of 1-2% pod rot

MT: moderate threshold, RR applied 2 times based on a threshold of 3-4% pod rot

HT: high threshold, Abound FL was applied one time, based on a threshold of 5-6% pod rot

N: no fungicide applied.

Results and Discussion:

At both fields, pod rot began to increase during the week of the 27^{th} of July and increased through the week of 17 August (Fig. 1). There was a dramatic change in symptoms during the week of 17 August. Prior to that sampling week, pod rot symptoms had been characteristic of *Pythium*, with a very black, soft rot, and every pod with symptoms was completely consumed by the rot. However, from 17 August onwards, in both fields, a percentage of pods were identified with a more superficial rot, often of a lighter color. *Rhizoctonia* was only isolated in low frequencies from the Mason field, and hardly ever from the Grissom field, so it is likely that the more superficial discolorations were caused by unsuccessful *Pythium* attacks. *Pythium* was isolated from rotted pods frequently during this study. The rating during the week of 17 August included both rotted and superficially rotted pods. However, after that week, two categories were created, and only those pods with significant rot were included in the pod rot category. Pod rot decreased gradually from a high of 8% on 17 August to 3% by 21 September for the Grissom field (Fig. 1). Newly infected pods were identified weekly, but after 17

August, most of the rotted pods were due to old infections. All sampling points for the Grissom field are seen in Figure. 2.

In the Mason field, there were seven different treatments that were mapped weekly. Mason A/R (Abound FL applied initially, followed by Ridomil Gold + Provost applied for the second application) was one of the most effective at reducing pod rot, while the treatment with no fungicide had more pod rot, particularly from 19 August through the rest of the season (Fig. 1). An analysis was done comparing the seven fungicide treatments with pod rot, averaged from 29 July through 23 August, yield, percentage of extra large kernels, grade, percentage of damaged kernels, and value of the crop (minus fungicide costs) per acre. Percent pod rot was higher for the no fungicide treatment and for the moderate and high thresholds than for the calendar applied treatments (Table 1). The low threshold had less pod rot than the no fungicide treatment, but was not significantly different than the other treatments (Table 1). The percent of extra large kernels was lowest for the no fungicide treatment compared with all but the high threshold treatment (Table 1). Grades were higher for the calendar treatment with Abound FL applied twice, than for the no fungicide treatment (Table 1). The percent damaged kernels was lower for the Abound FL calendar treatment applied twice than for the no fungicide and high threshold treatments (Table 1). Yield was higher for the calendar treatment with Abound FL, rotated with Ridomil Gold + Provost, and for the low threshold treatment compared to the no-fungicide treatment (Table 1). However, once fungicide costs were subtracted for each treatment, the gains in yield were offset by cost of products, and there were no treatment differences for value of the crop (dollars /acre) (Table 1). All sampling points are seen in Figure 3, once pod rot was found. Prior to 29 July, pod rot had not been seen.

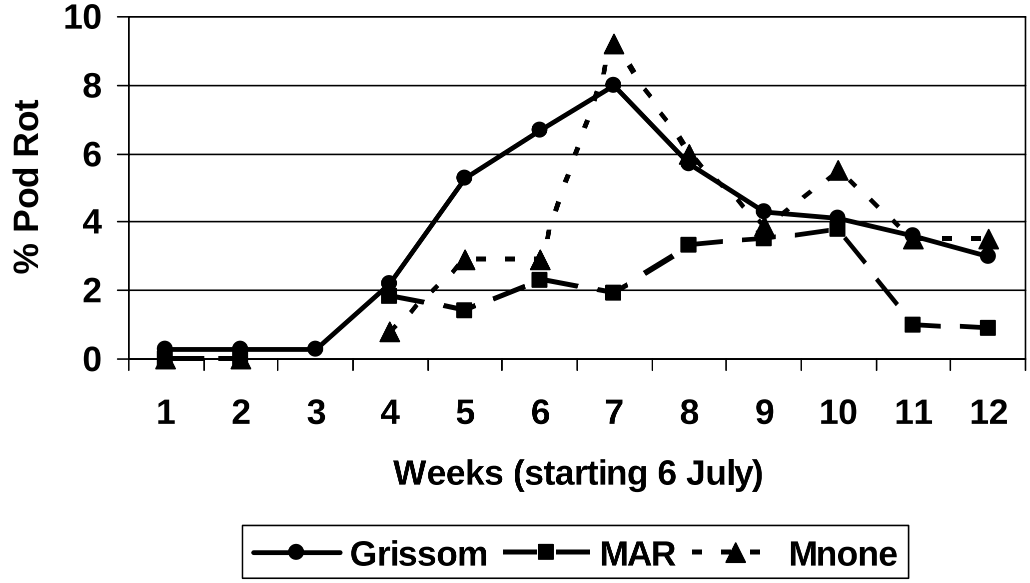

Figure1. Percent pod rot based on weekly sampling at the Grissom field (●), Mason field with Abound FL/Ridomil Gold + Provost (MAR) fungicide treatment (■), and Mason field with no fungicide treatment (none) (▲).

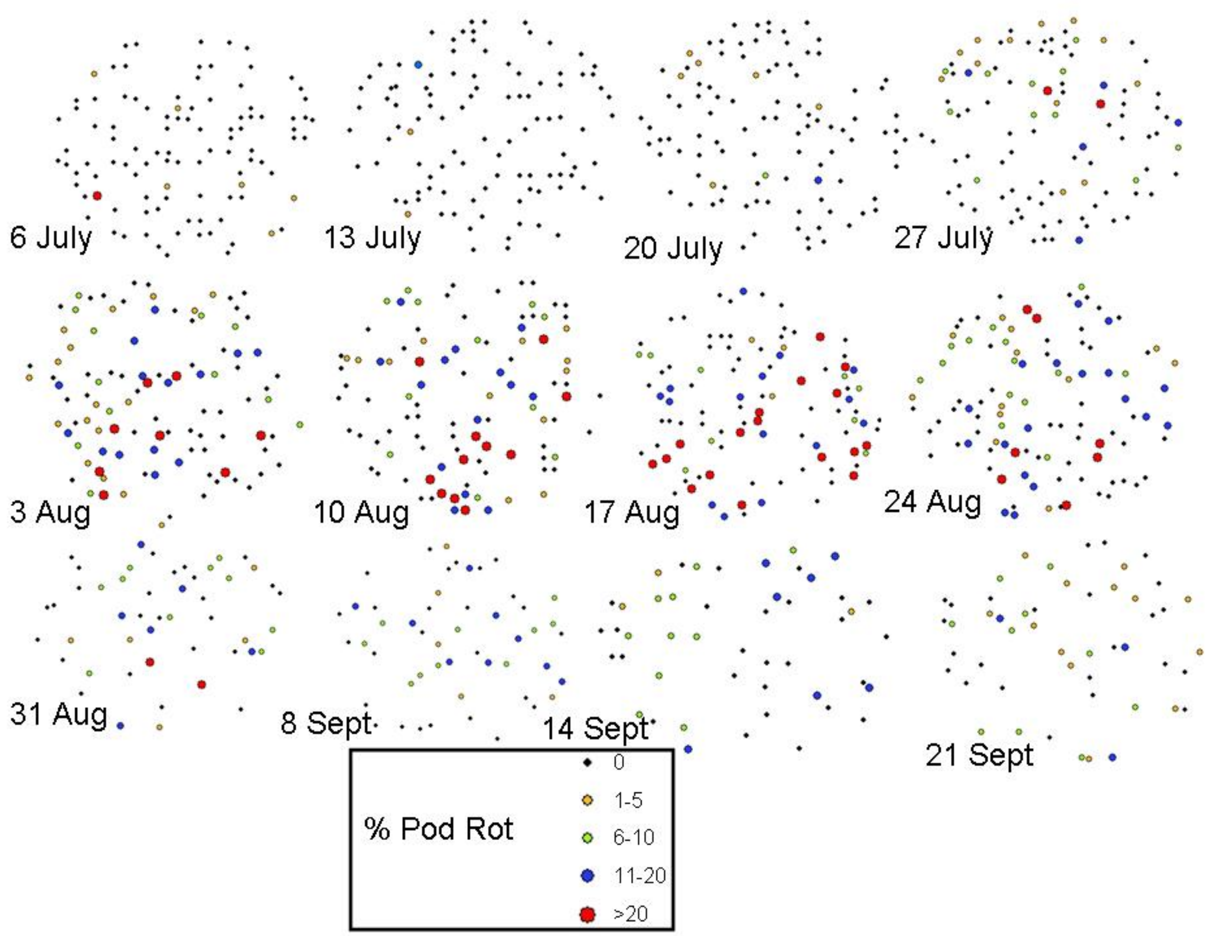

Figure 2. Location of sampling points at the Grissom field during the 2009 season, and amount of pod rot present at each point.

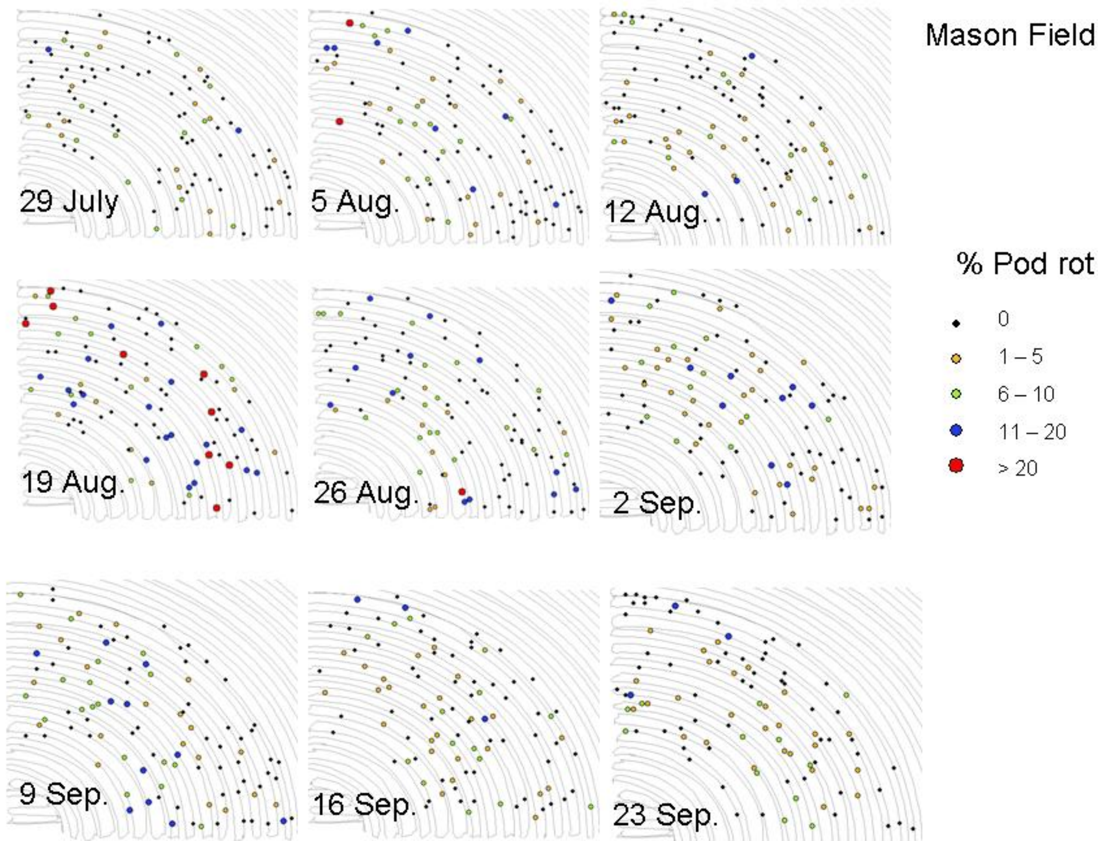

Figure 3. Location of sampling points during weeks when pod rot was identified at the Mason field in 2009.

Table 1. Affect of fungicide treatment on pod rot, yield, and value of the crop/acre.

Treatment[a]	# of sprays	% Pod rot[b]	% ELK[d]	Grade	%DK[e]	Yield Lbs/a	Fungicide Costs ($/a)[f]	Value[g] $/acre
AA	2	1.8 c[c]	43 a	70.4 a	0.4 b	5,653 ab	60.54	964
AR	2	2.0 c	42 a	69.8 ab	0.5 ab	5,851 a	67.29	984
RR	2	1.8 c	44 a	68.7 ab	0.7 ab	5,486 ab	74.04	910
LT	3	2.6 bc	43 a	69.6 ab	0.5 ab	5,876 a	111.06	948
MT	2	3.6 ab	42 a	69.6 ab	0.9 ab	5,769 ab	74.04	956
HT	1	3.5 ab	40 ab	69.5 ab	1.0 a	5,584 ab	30.27	966
None	0	3.8 a	35 b	66.8 b	1.0 a	5,346 b	0	917

[a]AA is Abound FL applied twice during the season based on calendar dates decided by the producer. AR was similar to AA, except Abound Fl was applied on the first application and Ridomil Gold + Provost was applied on the second application. RR was similar to AR except Ridomil Gold + Provost was applied for both applications. LT stands for low threshold and Ridomil Gold + Provost was applied three times during the season when the pod rot threshold initially reached 1-2%, and then at least once every three weeks if pod rot was > 2%. MT was a moderate threshold, where Ridomil Gold + Provost were applied when pod rot initially reached 3-4%, and then a second application was made three weeks later when the pod rot was still around 4%. HT is high threshold, and Abound FL was applied when pod rot reached 5-6% initially. None indicates no fungicides for pod rot were applied.

[b]%Pod rot was combined across sampling dates from 29 July through 23 September.

[c]Letters that are different indicate that treatments were significantly different at $P < 0.05$.

[d]ELK = extra large kernels.

[e]DK = damaged kernels.

[f]Abound FL was applied at 24.6 oz/acre banded over 20-inch row spacing, with a cost of $315/gallon. Ridomil Gold was applied at 8 oz/acre, at a cost of $795/gallon, and Provost was applied at a rate of 10.7 oz./acre, at a cost of $291.50/gallon.

[g]Value/acre is the (%ELK x $0.35/ton) + (grade x $4.949/ton) + (% other kernels x $1.4/ton) – ($3.40/ton if %DK = 2%) – fungicide costs/acre.

Table 2. Percent pod rot for each fungicide treatment at the Mason field over time.

Trt[a]	7/29	8/5[b]	8/12	8/19	8/26	9/2	9/9	9/16	9/23
AA	1.0	4.0	1.0	7.9	1.4	0.5	0.6	1.1	0.5
AR	1.8	1.4	2.3	1.9	3.3	3.5	3.8	1.0	0.9
RR	0.7	4.1	1.5	4.4	1.3	1.9	2.6	1.3	1.8
LT	2.1	3.6	1.7	6.7	3.5	2.5	2.7	0.9	2.4
MT	3.0	2.7	2.1	7.5	5.1	3.5	4.5	4.1	3.1
HT	2.5	4.3	2.6	7.1	4.8	4.8	4.3	2.6	2.2
None	0.8	2.9	2.9	9.2	6.0	3.9	5.5	3.5	3.5

[a]AA is Abound FL applied twice during the season based on calendar dates decided by the producer. AR was similar to AA, except Abound Fl was applied on the first application and Ridomil Gold + Provost was applied on the second application. RR was similar to AR except Ridomil Gold + Provost was applied for both applications. LT stands for low threshold and Ridomil Gold + Provost was applied three times during the season when the pod rot threshold initially reached 1-2%, and then at least once every three weeks if pod rot was > 2%. MT was a moderate threshold, where Ridomil Gold + Provost were applied when pod rot initially reached 3-4%, and then a second application was made three weeks later when the pod rot was still around 4%. HT is high threshold, and Abound FL was applied when pod rot reached 5-6% initially. None indicates no fungicides for pod rot were applied.
[b]*Pythium* was isolated from the majority of pods tested and from all samples with pod rot, but *Rhizoctonia* was isolated from three samples on 5 Aug, from 3 samples on 12 Aug., four samples on 19 Aug., three samples on 2 Sept., six samples on 9 Sept., four samples on 16 Sept., and two samples on 23 Sept.

Table 3. Percent pod rot and frequency of pod rot from the Grissom field over time.

Date	% Pod rot	% Samples With pod rot
7/6	0.3	6.9
7/13	0.3	3.0
7/20	0.3	7.9
7/27	2.2	29.7
8/3	5.3	50.5
8/10	6.7	48.0
8/17	8.0	43.6
8/24	5.7	50.5
8/31	4.3	48.0
9/8	4.1	48.0
9/14	3.6	44.0
9/21	3.0	52.0

**Rhizoctonia* was isolated from 1 sample on 8/10, and from one sample on 9/21. *Sclerotium rolfsii* was isolated from one sample on 9/21. *Pythium* was isolated from rotted pods at all sampling times when rotted pods were found.

Table 4. Timing of fungicide sprays at the Mason and Grissom fields.

Field	Treatment	Spray 1	Spray 2	Spray 3
Grissom	Abound Fl, followed by Ridomil	7 July	28 July	
Mason	Calendar sprays (AA, AR, RR)	25 July	19 Aug	
Mason	Low Threshold	31 July	29 Aug	10 Sept.
Mason	Moderate Threshold	7 Aug	10 Sept.	
Mason	High Threshold	19 Aug		

Acknowledgments:
Texas ArgiLIFE would like to thank Mr. Jimbo Grissom and Mr. Tommy Mason for cooperation in this project. Thanks are also expressed to Syngenta and Bayer Crop Science for providing chemical for fungicide treatments. Funding for this research was provided by a grant through Texas Peanut Producers Board.

Peanut Tolerance to Valor Herbicide Applied Pre-emergence And Applied at Crack 2009

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Lyndell Gilbert, Technician II

Cooperator: Mr. Alan Bayer

Summary: Valor herbicide was applied to Virginia market type peanuts (Perry variety) pre-emergent and at-cracking, along with an untreated check; treatments were replicated four times. Observations taken included: plant stand count, number of plants displaying chlorosis, plant height, yield and grade. On June 3 the plots where Valor herbicide was applied had significantly more plants displaying chlorosis. The plants within the plots where Valor was applied at-crack were significantly shorter than either the pre-emergent treatment or the untreated control. However at harvest, there were neither significant differences in yield nor grade in any of the treatments.

Objective: Valor herbicide has been reported to cause injury to peanuts under certain conditions. In an effort to evaluate this potential on the Texas South Plains, several tests were conducted in 2008 and 2009 in commercial peanut production fields. This report covers one such test in Terry County, Texas in 2009.

Materials and Methods:

Plot Size:	8 rows by 50 feet, 4 replications
Soil type:	Fine sandy loam
Planting Date:	May 6, 2009
Variety:	Perry
Application Date:	Preemergence (PRE), May 8; At-crack (AC), May 22
Digging Date:	October 16, 2009
Harvest Date:	October 30, 2009

Results and Discussion:

Valor SX was registered for use in peanut in 2001. According to the Valor SX label, weeds controlled include kochia, common lambsquarter, several pigweed species including Palmer amaranth, golden crownbeard, and several annual morningglory species including ivyleaf morningglory. Valor SX may be applied prior to planting or preemergence. Preemergence applications must be made within 48 hours after planting and prior to peanut emergence. Applications made after plants have begun to crack or after they have emerged may result in severe injury. Splashing from heavy rains or cool conditions at or near emergence may also result in injury and even delayed maturity and yield loss. In 2009, several studies were conducted across the High Plains to gain experience and confidence with this relatively new peanut herbicide. At this location in Terry County (Mr. Alan Bayer), a Virginia market type (Perry) was planted on May 6 and Valor at 3 ounces per acre (oz/A) was applied on May 8 (within 48 hours of planting). On May 9, 0.75 inches of irrigation was applied to activate the herbicide. On May 22, an at-crack (AC) application of Valor SX at 3 oz/A was made followed by (fb) 0.2 inches of rainfall and an additional 0.75 inches of irrigation. An untreated control was used for comparison purposes. Peanut stand and plant height were recorded on June 3, which was 26 days after application. No difference in peanut stand was observed between the non-treated control and the Valor-treated plots (Table 1). Some peanut injury (chlorosis) was observed (<10%) and plant height was slightly reduced in the at-crack treatment relative to the non-treated control when evaluated 12 days after treatment. Peanuts were dug October 16, allowed to air dry on the soil surface, and harvested with a small-plot peanut thrasher October 30. Peanut yield from the Valor-treated plots ranged from 4340 to 4709 lb/A, which was not different from the non-treated control (4279 lb/A). Grade was also evaluated and there was no difference when the Valor-treated were compared to the non-treated control. Results from this study and several others across the High Plains suggest that Valor is a safe option for peanut producers in our region. Although peanut injury has been observed in other states and in the High Plains when rates exceeded labeled recommendations, we feel that this herbicide is a good option for peanut growers for early-season weed control (4 to 6 weeks of soil residual activity).

Table 1. Peanut injury and yield as affected by Valor applied preemergence in Brownfield, TX, 2009[a].

Treatment	Rate	Prod.	Timing	Peanut Stand	Chlorosis	Peanut Height	Yield	Grade
				Jun 3	Jun 3	Jun 3		
	lb ai/A	oz/A		plants/3ft.	plants/5ft.	in.	lb/A	
Untreated	---	---	---	11.5	0.3 a	5.0 a	4279	65
Valor SX	0.096	3	PRE	12.2	3.5 b	5.3 a	4340	64
Valor SX	0.096	3	AC	12.3	10.0 c	4.1 b	4709	64
CV				7.59	29.32	11.26	13.88	6.76
p Value				0.4333	0.0001	0.0410	0.5938	0.9489
$LSD_{(0.10)}$				NS	1.85	0.7454	NS	NS

[a]Abbreviations: AC, at-crack; NS, non-significant; PRE, preemergence

Acknowledgments:
Texas ArgiLIFE would like to thank Mr. Alan Bayer for cooperation in this project.

EVALUATION ON METHODS TO IMPROVE CONTROL OF SCLEROTINIA BLIGHT IN PEANUT

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Cooperator: Mr. Gary Jackson

Introduction

Sclerotinia blight, caused by the soilborne fungus *Sclerotinia minor* Jagger, is a serious threat to peanut production in portions of Gaines and Collingsworth counties. Several factors contribute to the difficulty of managing the disease. While the biology of *S. minor* has been intensely studied, the development of Sclerotinia blight in West Texas is poorly understood. Over the past three growing seasons, the onset Sclerotinia epidemics have begun by the second week of July, resulting in as many as four fungicide applications being made. Preventative applications have been found to provide superior levels of control compared to curative applications indicating the importance of proper fungicide timing. Several advisory models, which utilize environmental conditions, have been developed to aid in properly timing fungicide applications in Oklahoma and the Virginia/Carolina region; however, these models have yet to be evaluated under West Texas conditions. An additional problem facing producers is the cost of fungicides labeled for control of Sclerotinia blight, thus more cost effective application methods need to be investigated. The objectives of this research were to i) evaluate forecasting models to predict the onset of Sclerotinia blight epidemics to aid in making timely fungicide applications, and ii) compare broadcast and banded applications of fungicides applied during the day or at night.

Sclerotinia forecasting trials: Three field trials were conducted in western Gaines County to evaluate forecasting models for control of Sclerotinia blight. The field chosen for these trials had a history of Sclerotinia related losses. Trials were planted to either Flavor Runner 458, Tamrun OL02 (susceptible cultivars), or Tamrun OL07 (a partially resistant cultivar). All trials were planted 20-Apr. Plots were 2-rows wide by 40 feet in length and planted on a 36-inch row spacing. Environmental factors monitored for forecasting models included: soil temperature at a depth of 4 inches, rainfall or irrigation, and relative humidity within the canopy. Host plant growth factors including vine growth and canopy density were also monitored. Specific treatments were derived by weighing values on the aforementioned factors as they relate to Sclerotinia blight development. If the value of the factor had little impact on disease development, it was assigned a value of zero. The greater the factor's impact the higher the value assigned. These values were multiplied to provide a daily risk index and this value was summed over five days to calculate a "Five Day Risk Index" (FDI). The FDI was utilized as a trigger (threshold) to initiate a fungicide spray application. Eight treatments were evaluated for the management of Sclerotinia blight of peanut. These treatments utilized several FDI values, calendar and curative treatments. When a fungicide application was made, the risk index was reset to zero until the 28th day following application at which time the summation began anew. Treatments were arranged in a randomized complete block design with four replications. Dates for specific fungicide applications are listed in Table 1. Final disease assessments were made prior to harvest. Plots were dug on 29-Oct and thrashed 6-Nov.

Despite the previous history of disease in this field and adjacent fields no appreciable levels of Sclerotinia blight were observed (Table 2). When averaged across all fungicide treatments, pod yields were 5635, 5524, 5782 for Flavor Runner 458, Tamrun OL02, and Tamrun OL07, respectively. Although statistical comparisons could not be made, field observations indicate that differences in pod rot incidence may exist between cultivars. Mean pod rot incidence was 8.1, 1.5, and 1.3% for the respective cultivars. Additional work is needed to better identify the environmental factors required for initial *S. minor* infections.

Preventative vs. curative fungicide applications: Additional trials were conducted at the Western Gaines County location to evaluate the performance of the fungicides Omega and Endura in preventative and curative spray programs when applied to Flavor Runner 458, Tamrun OL02, or Tamrun OL07. Treatments consisted of an untreated control, Omega at 1.0 pt/A, Omega at 1.5 pt/A, or Endura at 10 oz/A preventatively, as well as Omega at 1.5 pt/A, and Endura at 10 oz/A curatively. Treatments were arranged in a randomized complete block design with 4 replications. Initial preventative applications were made 6-Jul with a subsequent application made 10-Aug. Initial curative applications were made after the observation of disease symptoms (24-Jul), followed by a second application 29-Aug. All fungicide applications were made using a CO_2 pressurized backpack sprayer.

Results similar to those obtained in the Sclerotinia forecasting trials were observed in these trials. The lack of Sclerotinia blight developing impeded our ability to compare fungicide treatments. Pod yield in these studies were similar for the three cultivars ranging from 5392 to5445 lb/A (Table 3). Again differences in pod rot were observed with Flavor Runner 458 having higher levels of pod rot than Tamrun OL02 or Tamrun OL07, 13.8, 2.5, and 1.5%, respectively. Additional observations on the response of peanut cultivars to pod rot are desperately needed. While, application timing is critical for optimal management of Sclerotinia blight, previous studies have shown that routine scouting, and timely applications (generally the first week in July) can effectively minimize losses associated with this disease.

Application timing and method trials: Prior studies conducted in Georgia have shown that the folding of peanut leaflets during the night allows for improved penetration of fungicides into the lower canopy, thus, improving control of Southern blight. Furthermore, the banding of fungicides over the row is believed to direct more fungicide into the plant canopy, where initial *S. minor* infections occur. To address this, three field trials (utilizing Flavor Runner 458, Tamrun OL02, and Tamrun OL07) were conducted at the Texas AgriLife research and Extension Center located in Stephenville in a field naturally infested with *S. minor*. Plots were 2-rows wide by 25 feet in length on a 36-in row spacing. Treatments, consisting of banded and broadcast applications of Omega and Endura, were arranged in a randomized complete block design with three replications. The trial was planted on 2-Jun and fungicide applications were made on 18-Aug and 24-Sept. Banded applications used a total volume of 10 gallons per acre; broadcast applications used 22 gallons per acre. A full description of the treatments evaluated is presented in Table 4. Final disease assessments were made prior to digging. Plots were thrashed 17-Nov.

Overall, the applications of Omega or Endura reduced the incidence of Sclerotinia blight compared to the non-treated controls (Table 4). As in other trials, disease incidence was lower for Tamrun OL07 (23.8%) compared to Flavor Runner 458 (43.5%) and Tamrun OL02 (42.8%). When comparing like application timings and/or methods yields were higher for Endura treated plots than Omega. The use of Omega at 1.0 pt/A at night did not improve yields over the non-treated controls, nor did banding Omega (1.5 pt/A) during the daytime. Yields were similar when comparing applications made during the day vs. night. Additional studies evaluating aspects of these approaches are needed.

Cultivar x fungicide efficacy trials: A field trial was conducted to evaluate the response of the cultivars Flavor Runner 458, Tamrun OL02, and Tamrun OL07 to calendar applications of Omega, Endura, and two rates of an experimental fungicide (LEM). Plots were arranged in a randomized complete block design with four replications. Fungicides were applied on 14-Aug and 18-Sept. using a CO_2 pressurized backpack sprayer described above. Sclerotinia blight ratings were made prior to harvest. Plots were dug and harvested as described previously.

All fungicides effectively reduced Sclerotinia blight incidence compared to the non- treated control (Table 5). Yields were increased by 729 to 949 lb/A for all treatments except LEM at 1.0 pt/A, which did not differ from the non-treated control. When averaged across fungicide treatments, yields were highest for Tamrun OL07 (2906 lb/A) followed by Flavor Runner 458 (2254 lb/A) and Tamrun OL02 (2233 lb/A).

Genotype x fungicide efficacy trials: An additional field trial was conducted to evaluate the response of the advanced breeding lines TX-55305, TX-55306, TX-55307, and TX-55308 and cultivars Flavor Runner 458 and Tamrun OL07 to calendar applications of the fungicide Omega. The experimental design was a split-plot, where fungicide treatment (Omega vs. non-treated control) served as whole-plots, and genotypes served as sub-plots. There were a total of four replications in this trial. Omega was applied on 14-Aug and 18-Sept. Applications, ratings and harvest coincided with dates mentioned previously.

The application of Omega (1.5 pt/A) lead to a significant reduction in disease incidence compared to the non-treated control (Table 6). This in turn resulted in a yield increase of approximately 1800 lb/A. Significant differences were also observed between the cultivars evaluated. Yields were lowest for Flavor Runner 458 at 2435 lb/A. A yield increase of 608 lb/A was observed for Tamrun OL07. Yields for all breeding lines were equal to or greater than that of Tamrun OL07, with TX-55308 yielding 4475 lb/A. The yield increases of advanced breeding lines over Tamrun OL07 are encouraging from the aspect of future disease management options. Additional studies are slated for 2010 to further evaluate the response of these and other breeding lines to fungicide inputs.

Experimental fungicide trial: A final study was conducted to evaluate the performance of experimental fungicides. LEM at 1.0 and 1.5 pt/A and two other experimental fungicides compared to Omega (1.5 pt/A), and a non-treated control. These plots were established in a field planted to Flavor Runner 458. Plots were 2-rows wide by 25 feet in length on a 36-in row spacing. Treatments were arranged in a randomized complete block design with five replications. All other aspects of the trial were handled as previously described.

Sclerotinia blight incidence was greatest in the non-treated control, and the application of fungicides lead to significantly lower levels of disease (Table 7). Disease incidence was lowest for Omega at 15.5%. Disease incidence ratings for the other experimental fungicides were intermediate. While yields were generally higher than the non-treated control, no significant differences were observed. Additional studies evaluating these products are needed to see how they compare to commercially available products such as Omega.

Summary and Conclusions

Sclerotinia blight is a destructive disease of peanut with limited management options. Currently management strategies consist of using partially resistant cultivars and multiple applications of fungicides. Results from these studies indicate that Tamrun OL07 consistently out performs the commercial standard Flavor Runner 458. Initial results indicate that advanced breeding lines perform as well, or better than TamrunOL07. The use of the fungicides Omega and Endura have lead to substantial yield increases over the past several years. There are several experimental fungicides with potential activity towards Sclerotinia blight; however, regional efficacy data is limited. Various aspects of Sclerotinia blight management will remain the focus of future research.

Table 1. Dates of fungicide applications and model reset for the Sclerotinia forecasting model trials (Gaines County).

Treatment	1st application	Reset date	2nd application
Non-treated control	n/a†	n/a†	n/a†
Calendar	6-Jul	3-Aug	7-Aug
Curative	24-Jul	21-Aug	20-Aug
FDI=16	22-Jul	19-Aug	20-Aug
FDI=24	22-Jul	19-Aug	20-Aug
FDI=32	24-Jul	21-Aug	22-Aug
FDI=40	1-Aug	29-Aug	22-Aug
FDI=48	3-Aug	31-Aug	22-Aug

† n/a = not applicable.

Table 2. Effect of calendar, curative and forecasted fungicide applications on Sclerotinia blight, pod yield, and grades in three trials (Gaines County).

Trial, treatment	Sclerotinia blight (%)	Pod yield (lb/A)	Pod rot (%)
Flavor Runner 458			
Non-treated control	0	5646	9.3
Calendar	0	5550	7.0
Curative	0	5437	8.3
FDI=16	0	5776	7.5
FDI=24	0	5518	8.0
FDI=32	0	5695	8.5
FDI=40	0	5872	7.5
FDI=48	0	5582	8.5
LSD ($P \leq 0.05$)	-----	ns†	ns†
Cultivar mean‡	**-----**	**5635**	**8.1**
Tamrun OL02			
Non-treated control	0	5576	1.5
Calendar	0	5227	1.8
Curative	0	5614	1.8
FDI=16	0	5760	2.8
FDI=24	0	5746	0.8
FDI=32	0	5695	0.5
FDI=40	0	5501	1.5
FDI=48	0	4872	1.3
LSD ($P \leq 0.05$)	-----	ns†	ns†
Cultivar mean‡	**-----**	**5524**	**1.5**
Tamrun OL07			
Non-treated control	0	5760	0.0
Calendar	0	6066	2.8
Curative	0	5824	3.0
FDI=16	0	6163	1.3
FDI=24	0	5259	0.0
FDI=32	0	5727	1.3
FDI=40	0	5598	0.8
FDI=48	0	5865	1.5
LSD ($P \leq 0.05$)	-----	ns†	ns†
Cultivar mean‡	**-----**	**5782**	**1.3**

† ns = not significantly different.

‡ Statistical analysis could not be conducted because of how these studies were conducted. Means within the row are merely for observational.

Table 3. Effect of preventative (Prev.) and curative (Cur.) Sclerotinia blight fungicide programs on pod rot and pod yields (Gaines County).

Treatment, rate and timing	Pod rot (%)[a]			Pod yield (lb/A)		
	FR 458	TR OL0	TR OL0	FR 458	TR OL0	TR OL0
Non-treated control	10.3 a	3.8 a	0.0 a	5248 a	5337 a	5518 a
Omega (1.0 pt/A Prev.)	17.0 a	1.5 a	1.5 a	5518 a	5595 a	5635 a
Omega (1.5 pt/A Prev.)	12.3 a	1.5 a	1.0 a	5401 a	5619 a	5235 a
Endura (10 oz/A Prev.)	21.0 a	2.0 a	0.8 a	5639 a	5119 a	5227 a
Omega (1.5 pt/A Cur.)	9.0 a	1.0 a	1.0 a	5340 a	5902 a	5316 a
Endura (10 oz/A Cur.)	13.3 a	2.5 a	1.5 a	5345 a	5095 a	5421 a
LSD (P≤0.05)	ns†	ns†	ns†	ns†	ns†	ns†
Mean‡	**13.8**	**2.5**	**1.5**	**5415**	**5445**	**5392**

† ns = not significantly different.

‡ Statistical analysis could not be conducted because of how these studies were conducted. Means within the row are merely for observational.

Table 4. Effect of broadcast and banded applications of the fungicides Omega and Endura applied during the day or night on Sclerotinia blight development, pod yields, and grade (Stephenville).

Application timing, fungicide (rate)	Application method	Sclerotinia blight (%)	Pod yield (lb/A)
Day			
Endura (10 oz/A)	Broadcast	23.5 ef	3273 a
Endura (10 oz/A)	Banded	30.8 def	2481 bcd
Omega (1.5 pt/A)	Broadcast	35.8 cd	2505 bc
Omega (1.5 pt/A)	Banded	44.0 bc	1983 cde
Night			
Endura (10 oz/A)	Broadcast	19.8 f	2805 ab
Endura (10 oz/A)	Banded	21.8 ef	2757 ab
Omega (1.5 pt/A)	Broadcast	32.5 de	2637 b
Omega (1.5 pt/A)	Banded	41.5 bcd	2295 bcd
Omega (1.0 pt/A)	Broadcast	44.5 bc	1989 cde
Omega (1.0 pt/A)	Banded	48.3 b	1959 de
Non-treated control	- - - -	61.8 a	1515 e
	LSD (P≤0.05)	11.3	525
Cultivar effects			
Flavor Runner 458		43.5 a	2178.0b
Tamrun OL02		42.8 a	2189.3b
Tamrun OL07		23.8 b	2910.0a
	LSD (P≤0.05)	5.8	276.7

† Percent of row feet exhibiting signs or symptoms of *S. minor*. ‡ Means within a column followed by the same letter are not significantly different according to Fisher's protected LSD.

Table 5. Effect of fungicides and peanut cultivars on final Sclerotinia blight incidence and pod yield (Stephenville).

Treatment (rate/A)	Sclerotinia blight incidence (%)†	Pod yield (lb/A)
Non-treated control	52.3 a‡	1882 c‡
Endura (10 oz)	32.5 b	2831 a
Omega (1.5 pt)	26.3 b	2611 ab
LEM (1.0 pt)	25.6 b	2299 bc
Exp (1.5 pt)	32.1 b	2698 ab
LSD	9.4	531
Cultivar		
FR 458	34.0 a‡	2254 b‡
TR OL02	43.3 a	2233 b
TR OL07	24.0 b	2906 a
LSD	8.3	488

† Percent of row feet exhibiting signs or symptoms of *S. minor*. ‡ Means within a column followed by the same letter are not significantly different according to Fisher's protected LSD.

Table 6. Effect of fungicides and peanut genotype (cultivars and advanced breeding lines) on final Sclerotinia blight incidence and pod yield (Stephenville).

Treatment (rate/A)	Sclerotinia blight incidence (%)†	Pod yield (lb/A)
Non-treated control	58.6 a	2852 b
Omega (1.5 pt)	21.3 b	4053 a
LSD ($P \leq 0.05$)	14.6	623
Genotype		
FR 458	38.6 a	2435 c
TR OL07	24.8 bc	3043 bc
TX-55305	26.8 b	3311 b
TX-55306	25.4 bc	3530 b
TX-55307	20.3 bc	3677 b
TX-55308	15.3 c	4475 a
LSD ($P \leq 0.05$)	11.3	636

† Percent of row feet exhibiting signs or symptoms of *S. minor*. ‡ Means within a column followed by the same letter are not significantly different according to Fisher's protected LSD.

Table 7. Effect of experimental fungicides on final Sclerotinia blight incidence and pod yield (Stephenville).

Treatment (rate/A)	Sclerotinia blight incidence (%)†	Pod yield (lb/A)
LEM (1.0 pt)	32.0 b	2454 a
LEM (1.5 pt)	26.0 bc	2287 a
EXP I (1.14 pt)	27.0 bc	2490 a
EXP II (1.5 pt)	22.0 cd	2723 a
Omega (1.5 pt)	15.5 d	2403 a
Non-treated control	39.5 a	2229 a
LSD ($P \leq 0.05$)	10.1	ns

† Percent of row feet exhibiting signs or symptoms of *S. minor*. ‡ Means within a column followed by the same letter are not significantly different according to Fisher's protected LSD.

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