2010 Annual Report

AGRICULTURAL COMPLEX
FOR
ADVANCED RESEARCH
AND
EXTENSION SYSTEMS

(AG-CARES)

Technical
Report
11-1

IN COOPERATION WITH
★ Lamesa Cotton Growers
★ Texas AgriLife Extension Service ★ Texas AgriLife Research

Improving Life Through Science and Technology.

Improving Lives. Improving Texas.

Texas AgriLife and Research and Extension Center of Lubbock
1102 E. FM 1294
Lubbock, TX 79403-6603

This report documents research and extension results found in 2010 at the AG-CARES site. Since 1990, our scientists, in partnership with Lamesa Cotton Growers have addressed crop production issues that producers have faced in the area between Lubbock and Big Springs. This growing region has limited water, erratic rainfall, and soils that are difficult to manage.

Key areas of work this past year include:

- Continuing studies comparing LEPA and subsurface drip irrigation
- Developing management practices for root knot nematode control
- Screening cotton germplasm for tolerance/resistance to root knot nematodes
- Providing yield and quality information on latest cotton varieties
- Comparison of stripper and picker harvest methods
- Evaluating performance of non-transgenic cottons available in public breeding programs

AG-CARES continues to function as a showcase location to illustrate how this partnership between growers and AgriLife Research and Extension works together to solve crop production problems. Each year events are held to inform key elected officials at the state and federal level government agencies and area producers how their funding impacts agricultural production.

The continued leadership provided by Lamesa Cotton Growers' current officers is acknowledged. They include Kevin Pepper, Shawn Holladay and Johnny Ray Todd, along with John Farris. Lamesa County Extension agents Jeff Wyatt and Tommy Doederlein provide support. Longtime site manager Danny Carmichael provides the day-to-day management of AG-CARES. Program coordination is handled by Wayne Keeling with our AgriLife Research and Extension scientists.

Finally, we wish to recognize Randy Boman for his past eighteen years of service to cotton producers on the Southern High Plains and for his service at AG-CARES.

Jaroy Moore
Resident Director of Research
Texas AgriLife Research and Extension Center
Lubbock

Galen Chandler
Regional Program Director
Texas AgriLife Extension Service
Agriculture and Natural Resources

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2010

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The Lamesa Cotton Growers would like to thank the following for their contributions to the AG-CARES Project:

Americot Cotton Seed
Bayer CropScience/FiberMax
Cotton, Inc. – State Support Program
Dawson County Commissioners Court
DuPont Crop Protection
Monsanto/Delta & Pine Land Seed Co.
National Cotton Council
National Peanut Board
Sam Stevens, Inc.
Syngenta
Texas Peanut Producers Board
United Sorghum Checkoff Program

TITLE:

Cotton Variety Performance (continuous cotton) as Affected by Low-Energy Precision Application (LEPA) Irrigation Levels at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Wayne Keeling, Jim Bordovsky, Jacob Reed and Michael Petty; Professor, Agricultural Engineer-Irrigation, Sr. Research Associate, and Research Assistant.

MATERIALS AND METHODS:

Plot Size:	4 rows by 300-700 feet, 3 replications			
Planting Date:	May 5			
Varieties:	Stoneville 5458B2RF			
	FiberMax 9160B2F			
	Americot 1532B2RF			
	Delta Pine 0935B2RF			
Herbicides:	Prowl 3 pt/A PPI			
	Roundup PowerMax 22 oz/A POST (Terminate Rye Cover)			
	Roundup PowerMax 22 oz/A POST (June 17)			
	Pix 16oz/Ac (July 14)			
	Roundup PowerMax 22 oz/A POST (July 21)			
Insecticide:	Temik 3.5 lbs/Ac at planting			
Fertilizer:	130-35-0			
Irrigation in-season:				
		Low	Medium	High
	Total	3.4”	5.1”	6.8”
Harvest Date:	October 26			

RESULTS AND DISCUSSION:

Four Roundup Ready Flex/Bollgard II varieties were planted under three low-energy precision application (LEPA) irrigation levels in 2010. Irrigation level is based on maximum pumping capacities of 0.12”, 0.18”, and 0.24” per day. These represent a “base” irrigation amount and ±33% of the base. Plots were cultivated and furrow dikes rebuilt once during the growing season. Plot weights and grab samples were collected at harvest and ginned for turnout and fiber analysis. The trial was planted May 5 and benefited from timely rainfall throughout mid-July. Irrigation was initiated in late July and continued through August and plots were stripper harvested by late-October.

When averaged across irrigation treatments, highest lint yields were produced with ST 5458B2RF, which were 27% higher than the average of the other three varieties (Table 1). When averaged across varieties, higher lint yields were produced with the “high” irrigation treatment (+10%) compared to the base irrigation and lower yields (-16%) with the “low” irrigation treatment compared to the “base” treatment. The 10% yield increase with the “high” irrigation treatments required a 33% increase in irrigation applied.

Lint quality as measured by loan value was not affected by irrigation level but was affected by variety (Table 2). Similar loan values were produced by AM 1532B2RF, FM 9160B2F, and DP 0935B2RF. ST 5458B2RF loan values were lower than both the FiberMax and DeltaPine varieties.

When averaged across irrigation levels, gross revenues (yield × loan price) were highest with ST 5458 B2RF with much higher yields slightly offset by a lower loan value (Table 3). When averaged across varieties, gross revenues per acre increased as irrigation level increased.

Table 1. Effects of B2RF variety and LEPA irrigation levels on cotton lint yields at AG-CARES, Lamesa, TX, 2010.

Variety	L	M	H	Avg.
	lbs/A			
AM 1532B2RF	884 ab	1060 ab	1130 b	1025 B
ST 5458B2RF	1098 a	1270 a	1466 a	1278 A
FM 9160B2F	758 b	1004 b	1101 b	954 B
DP 0935B2RF	942 ab	1026 b	1105 b	1024 B
Avg.	921 C	1090 B	1201 A	
% change	(-16%)	(——)	(+10%)	

Table 2. Effects of B2RF variety and LEPA irrigation levels on lint value at AG-CARES, Lamesa, TX, 2010.

	L	M	H	Avg.
Variety	¢/lb			
AM 1532B2RF	52.97 a	54.82 a	55.75 a	54.51 AB
ST 5458B2RF	53.30 a	54.10 a	54.40 a	53.93 B
FM 9160B2F	55.53 a	56.85 a	56.30 a	56.23 A
DP 0935B2RF	55.18 a	56.02 a	56.00 a	55.73 A
Avg.	54.25 A	55.45 A	55.61 A	

Table 3. Effects of B2RF variety and LEPA irrigation levels on gross revenues at AG-CARES, Lamesa, TX, 2010.

	L	M	H	Avg.
Variety	$/A			
AM 1532B2RF	469 ab	582 a	629 ab	560 B
ST 5458B2RF	584 a	688 a	797 a	690 A
FM 9160B2F	421 b	571 a	620 b	537 B
DP 0935B2RF	519 ab	575 a	618 b	571 B
Avg.	498 B	604 A	666 A	
% change	(-18%)	(——)	(+10%)	

TITLE:

Cotton Variety Performance (sorghum-cotton rotation) as Affected by Low-Energy Precision Application (LEPA) Irrigation Levels at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Wayne Keeling, Jim Bordovsky, Jacob Reed and Michael Petty; Professor, Agricultural Engineer-Irrigation, Sr. Research Associate, and Research Assistant.

MATERIALS AND METHODS:

Plot Size:	4 rows by 300-700 feet, 3 replications
Planting Date:	May 5
Varieties:	Stoneville 5458B2RF
	FiberMax 9160B2F
	Americot 1532B2RF
	DeltaPine 0935B2RF
Herbicides:	Prowl 3 pt/A PPI
	Caparol 1.5 pt/Ac (May 5)
	Roundup PowerMax 22 oz/A POST (June 2)
	Pix 16oz/A (July 14)
	Roundup PowerMax 28 oz/A POST (August 18)
Insecticide:	Temik 3.5 lbs/A at planting
Fertilizer:	130-35-0
Irrigation in-season:	

	Low	Medium	High
Total	3.4”	5.1”	6.8”

Harvest Date:	October 20

RESULTS AND DISCUSSION:

Four Roundup Ready Flex/Bollgard II varieties were planted following sorghum grown in 2009. Sorghum stalks were shredded prior to planting. Irrigation levels were based on 0.12”, 0.18”, and 0.24” per day maximum pumping capacities and totaled 3.4”, 5.1”, and 6.8”/A during the growing season for the three irrigation levels. Plots were cultivated and furrow dikes rebuilt once during the growing season.

High cotton yields were produced following sorghum compared to the same varieties planted in the continuous cotton trial. When averaged across irrigation levels, highest yields were produced with ST 5458B2RF, which yielded 27% higher than the average of the other three varieties which produced similar yields (Table 1).

When varieties were combined, average yields increased with increasing irrigation levels. Lint quality (loan value) was similar for DP 0935B2RF, FM 9160B2F, and AM 1532B2RF which were greater than ST 5458B2RF (Table 2). Lint values were similar across the base and high irrigation levels and lower with low irrigation treatment.

When averaged across irrigation levels, highest gross revenues per acre were produced with ST 5458B2RF, with an increase of 23% compared to the other three varieties (Table 3). When averaged across varieties, gross revenues increased with increased irrigation level. Overall yields were 6% higher for cotton following sorghum compared to continuous cotton.

Table 1. Effects of B2RF variety and LEPA irrigation levels on cotton lint yields at AG-CARES, Lamesa, TX, 2010.

Variety	L	M	H	Avg.
		lbs/A		
AM 1532B2RF	865 ab	1030 a	1388 a	1094 B
ST 5458B2RF	1145 a	1236 a	1681 a	1354 A
FM 9160B2F	771 b	946 a	1106 a	941 B
DP 0935B2RF	945 ab	1121 a	1394 a	1153 AB
Avg.	932 C	1083 B	1392 A	
% change	(-14%)	(——)	(+29%)	

Table 2. Effects of B2RF variety and LEPA irrigation levels on lint value at AG-CARES, Lamesa, TX, 2010.

Variety	L	M	H	Avg.
		¢/lb		
AM 1532B2RF	52.40 a	55.75 ab	56.92 a	55.02 AB
ST 5458B2RF	53.72 a	53.50 c	53.73 c	53.65 B
FM 9160B2F	54.40 a	55.43 b	54.83 bc	54.89 AB
DP 0935B2RF	54.22 a	56.55 a	55.80 ab	55.52 A
Avg.	53.69 B	55.31 A	55.32 A	

Table 3. Effects of B2RF variety and LEPA irrigation levels on gross revenues at AG-CARES, Lamesa, TX, 2010.

Variety	L	M	H	Avg.
		$/A		
AM 1532B2RF	453 ab	574 a	789 a	605 AB
ST 5458B2RF	615 a	661 a	902 a	726 A
FM 9160B2F	419 b	524 a	607 a	517 B
DP 0935B2RF	514 ab	634 a	777 a	642 AB
Avg.	500 C	598 B	769 A	
% change	(-16%)	(——)	(+29%)	

TITLE:

Bayer Cotton Agronomic Performance Trial at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Wayne Keeling, Jacob Reed, Michael Petty, and Kenny Melton; Professor, Sr. Research Associate, Research Assistant, Texas AgriLife Research; and Regional Cotton Agronomist, Bayer CropScience.

MATERIALS AND METHODS:

Plot Size:	4 rows by 300-700 feet, 3 replications
Planting Date:	May 6
Varieties:	FiberMax 1740B2F
	FiberMax 9160B2F
	FiberMax 9170B2F
	Stoneville 4288B2F
	Stoneville 5458B2RF
Herbicides:	Prowl 3 pt/A PPI
	Roundup PowerMax 22 oz/A POST (June 17)
	Roundup PowerMax 22 oz/A POST (July 7)
	Pix 16oz/Ac (July 14)
	Roundup PowerMax 22 oz/A POST (July 21)
Insecticide:	Temik 3.5 lbs/Ac at planting
Fertilizer:	130-35-0
Irrigation in-season:	

	Low	Medium	High
Total	3.4”	5.1”	6.8”

Harvest Date:	October 27

RESULTS AND DISCUSSION:

When averaged across irrigation levels, yields ranged from 1110 to 1390 lbs lint/A, with highest yields produced with the Stoneville varieties (Table 1). Similar yields were produced with the three FiberMax varieties. When averaged across varieties, yields ranged from 996 lbs/A at the low irrigation level to 1383 lbs/A with high irrigation. Variety or irrigation level did not affect lint quality (loan value) (Table 2). Gross revenues (yield × loan price) were increased with increasing irrigation level and were highest with the Stoneville varieties (Table 3). Outstanding dryland yields were produced (707-842 lbs lint/A). Similar yields were produced by FM 1740B2F, ST 4288B2F, and ST 5458B2F. No differences in loan value or gross revenues were determined for the five varieties under dryland conditions.

Table 1. Effects of B2RF variety and LEPA irrigation levels on cotton lint yields at AG-CARES, Lamesa, TX, 2010.

	Irrigation Level				
Variety	Dryland	Low	Medium	High	Irrig. Avg.
	lbs/A				
FM 1740B2F	842 a	897	1163	1369	1143 b
FM 9160B2F	707 b	937	1119	1281	1112 b
FM 9170B2F	722 b	898	1195	1236	1110 b
ST 4288B2F	792 ab	1033	1274	1408	1238 ab
ST 5458B2RF	794 ab	1215	1353	1620	1390 a
Avg.	772	996 B	1221 AB	1383 A	
% change		(-18%)	(——)	(+13%)	

Table 2. Effects of B2RF variety and LEPA irrigation levels on lint value at AG-CARES, Lamesa, TX, 2010.

Variety	Dryland	Low	Medium	High	Irrig. Avg.
	¢/lb				
FM 1740B2F	55.68 a	55.43	57.02	57.27	56.57 a
FM 9160B2F	57.22 a	55.35	57.53	57.58	56.82 a
FM 9170B2F	57.37 a	54.77	57.38	57.68	56.61 a
ST 4288B2F	54.88 a	55.67	56.72	57.17	56.52 a
ST 5458B2RF	55.28 a	55.67	57.15	56.93	56.58 a
Avg.	56.09	55.38 A	57.16 A	57.33 A	

Table 3. Effects of B2RF variety and LEPA irrigation levels on gross revenues at AG-CARES, Lamesa, TX, 2010.

Variety	Dryland	Low	Medium	High	Irrig. Avg.
	$/A				
FM 1740B2F	469 a	498	663	784	649 b
FM 9160B2F	404 a	520	644	738	634 b
FM 9170B2F	414 a	493	686	713	630 b
ST 4288B2F	435 a	574	723	805	701 ab
ST 5458B2RF	439 a	677	773	923	791 a
Avg.	432	552 B	698 AB	792 A	
% change		(-21%)	(——)	(+14%)	

TITLE:

Monsanto FACT – Subsurface Drip Irrigation (SDI) Levels at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Wayne Keeling, Jacob Reed, Michael Petty, and Douglas Jost; Professor, Sr. Research Associate, Research Assistant, Texas AgriLife Research; and Technology Development Representative, Monsanto.

MATERIALS AND METHODS:

Plot Size:	2 rows by 100 feet, 3 replications
Planting Date:	May 4, 52,000 seeds/A
Variety:	DP 0924B2RF DP 1044B2RF DP 1032B2RF DP 0935B2RF DP 1028B2RF FM 9160B2F
Herbicides:	Trifluralin1.3 pt/A PPI Caparol 1.5 pt/A PRE Roundup PowerMax 22 oz/A EPOST Roundup PowerMax 22 oz/A MPOST
Insecticide:	Temik 3.5 lbs/A at planting
Fertilizer:	Dryland 40-20-0 Low Irrig. 60-30-0 Med Irrig. 90-30-0 High Irrig. 120-30-0
PGR:	Pentia 12oz/A (July 14)
Irrigation in-season:	Low Med High 2.2” 4.8” 7.3”
Harvest Dates:	October 12

RESULTS AND DISCUSSION:

Six cultivars were evaluated under dryland and three levels of sub-surface drip irrigation. Lint yields for all varieties increased dramatically from dryland (475 lbs/A) to low irrigation (1058 lbs/A) and low to medium irrigation level (1563 lbs/A). However, no yield increase was seen at the high irrigation level (1556 lbs/A) compared to the medium level (Table 1). Lint quality (loan value) was higher in irrigated compared to dryland plots (Table 2). No increase in gross revenues per acre was achieved with the high irrigation treatment (Table 3).

Table 1. Effects of B2RF variety and SDI irrigation levels on cotton lint yields at AG-CARES, Lamesa, TX, 2010.

Variety	Dryland	Low	Medium	High
	————————	——lbs/A——	————————	
DP 0924B2RF	437	1127	1591	1548
DP 0935B2RF	498	1049	1637	1534
DP 1028B2RF	504	1159	1568	1537
DP 1032B2RF	451	946	1458	1578
DP 1044B2RF	421	1155	1659	1538
FM 9160B2F	536	913	1462	1603
Avg.	475	1058	1563	1556
% change		(-32%)	(——)	(+0%)

Table 2. Effects of B2RF variety and SDI irrigation levels on lint value at AG-CARES, Lamesa, TX, 2010.

Variety	Dryland	Low	Medium	High
	————————	——¢/lb——	————————	
DP 0924B2RF	53.00	55.00	55.00	55.00
DP 0935B2RF	54.00	54.00	56.00	54.00
DP 1028B2RF	55.00	56.00	56.00	56.00
DP 1032B2RF	54.00	56.00	56.00	56.00
DP 1044B2RF	56.00	55.00	55.00	55.00
FM 9160B2F	54.00	56.00	56.00	56.00
Avg.	54.33	55.33	55.67	55.33

Table 3. Effects of B2RF variety and SDI irrigation levels on gross revenues at AG-CARES, Lamesa, TX, 2010.

Variety	Dryland	Low	Medium	High
	————————	——$/A——	————————	
DP 0924B2RF	232	620	875	851
DP 0935B2RF	269	566	917	828
DP 1028B2RF	277	649	878	861
DP 1032B2RF	244	530	816	884
DP 1044B2RF	236	635	912	846
FM 9160B2F	289	511	819	898
Avg.	258	585	870	861
% change		(-33%)	(——)	(-1%)

TITLE:

Picker Harvested Replicated LEPA Irrigated Cotton Variety Demonstration, AG-CARES, Lamesa, TX, 2008.

AUTHORS:

Jeff Wyatt, Tommy Doederlein, Randy Boman, Mark Kelley, and Chris Ashbrook; EA-ANR Dawson County, EA-IPM Dawson/Lynn Counties, Extension Agronomist-Cotton, Extension Program Specialist-Cotton, and Extension Assistant-Cotton.

MATERIALS AND METHODS:

Varieties: All-Tex Apex B2RF, Croplan Genetics 3006B2RF, Deltapine 1032B2RF, Dyna-Gro 2570B2RF, FiberMax 1740B2F, NexGen 4010B2RF, PhytoGen 367WRF, and Stoneville 5458B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 4.1 seeds/row-ft in solid planted 40-inch row spacing (John Deere MaxEmerge XP vacuum planter)

Plot size: 4 rows by variable length due to circular pivot rows (253-872 ft long)

Planting date: 7-May

Fertilization: 116 lbs/acre 10-34-0 were band applied preplant, and 30 lbs N/acre using UAN 32-0-0 were applied via fertigation on 26-May, 24-June, 2-July, and 25-July.

Weed management: Trifluralin was applied preplant incorporated at 1.3 qt/acre across all varieties. Roundup PowerMax was applied over-the-top at 32 oz/acre on 9-June, and at 28 oz/acre on 13-July with AMS. Plots were rod-weeded on 13-April. On 3-June, plots were cultivated with sweeps for volunteer cotton control.

Irrigation 7" inches of irrigation were applied via LEPA irrigation during the growing season.

Rainfall:

April: 3.02"	June: 2.43"	August: 0.15"
May: 0.87"	July: 4.29"	September: 4.66"

Total rainfall: 15.42"

Total irrigation and rainfall: 22.42"

Insecticides: This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Harvest aids: Harvest aids included 21 oz/acre Prep + 2.0 oz/acre ET with 1% v/v crop oil on 29-September followed by 24 oz/acre Gramoxone Inteon with 0.25% v/v NIS on 9-October.

Harvest: Plots were harvested on 12-October using a commercial John Deere 9996 Picker. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.

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

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

Ginning cost and seed values: Ginning costs were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $175/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed costs and technology fees were determined by variety on a per acre basis using the Plains Cotton Growers Seed Cost Calculator based on 4.1 seeds/row-ft.

RESULTS AND DISCUSSION:

Agronomic data including plant population, nodes above white flower (NAWF), and boll storm resistance are included in Table 1. Stand counts taken on 10-June indicated significant differences among varieties with a test average of 38,438 plants/acre. Stand counts ranged from a high of 43,667 plants/acre for Croplan Genetics 3006B2RF to a low of 29,167 for Deltapine 1032B2RF. Weekly NAWF counts were taken beginning 14-July to 11-August. Averages were 9.2 (14-July), 7.7 (21-July), 6.0 (28-July), 4.7 (4-August), and 3.0 (11-August). No significant differences among varieties were observed for any of the count dates. On 4-August, all but one variety (Dyna-Gro 2570B2RF) had reached cutout (NAWF=5 or less). By the final observation date, 11-August, all varieties had reached cutout. Just prior to harvest on 12-October, a visual observation of storm resistance was recorded for each variety in all three replications. The ratings were on a scale of 1-9 where 1 represents the least storm resistance. Significant differences were observed among varieties and values ranged from a high of 6.3 (NexGen 4010B2RF) to a low of 3.0 (PhytoGen 367WRF).

Significant differences were noted for all yield and economic parameters, with the exception of lint loan value (Table 2). Picker harvested lint turnout ranged from 31.5% for Croplan Genetics 3006B2RF to 37.7% for Deltapine 1032B2RF. Lint yields varied from a low of 817 lb/acre (NexGen 4010B2RF) to a high of 1092 lb/acre (Dyna-Gro 2570B2RF). Lint loan values numerically ranged from a low of $0.5355/lb to a high of $0.5632/lb for Phyto-Gen 367WRF and Croplan Genetics 3006B2RF, respectively. After adding lint and seed value, total value/acre ranged from a low of $470.21 for FiberMax 1740B2F, to a high of $743.68 for Dyna-Gro 2570B2RF. When subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $579.19 (Dyna-Gro 2570B2RF) to a low of $424.47 (FiberMax 1740B2F), a difference of $154.72.

Significant differences were observed for all fiber quality parameters at this location (Table 3). Micronaire values ranged from a low of 3.6 for PhytoGen 367WRF to a high of 4.4 for Deltapine 1032B2RF. Staple averaged 34.7 across all varieties with a low of 34.0 (Dyna-Gro 2570B2RF and FiberMax 1740B2F) and a high of 35.8 (Croplan Genetics 3006B2RF). Uniformity ranged from a low of 78.9 (Stoneville 5458B2RF) to a high of 81.7 (Croplan Genetics 3006B2RF), and strength ranged from a low of 27.7 g/tex for All-Tex Apex B2RF to a high of 31.3 g/tex for NexGen 4010B2RF. Significant differences were observed among varieties for percent elongation (8.4 avg), Rd or reflectance (77.5 avg), +b or yellowness (8.3 avg), and leaf (1.7 avg). It should be noted that no inclement weather was encountered at this location prior to picker harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

ACKNOWLEDGMENTS:

Appreciation is expressed to Dr. Danny Carmichael, AgriLife Research Associate - AG-CARES, Lamesa for his cooperation with this project. Further assistance was provided by Dr. Jane Dever - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. We also 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. In-season plant measurement results from the picker harvested LEPA irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2010.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of					Storm resistance
	10-Jun plants/row-ft	10-Jun plants/acre	14-Jul	21-Jul	28-Jul	4-Aug	11-Aug	12-Oct rating (1-9)
All-Tex Apex B2RF	2.7	35,833	8.9	7.5	5.9	4.6	2.8	4.3
Croplan Genetics 3006B2RF	3.3	43,667	9.0	7.4	6.0	4.7	2.6	4.0
Dyna-Gro 2570B2RF	3.1	40,833	9.7	8.1	6.4	5.1	3.1	3.7
Deltapine 1032B2RF	2.2	29,167	9.1	7.7	6.0	4.6	3.3	4.0
FiberMax 1740B2F	2.9	38,500	9.3	7.9	6.0	4.4	3.2	4.7
NexGen 4010B2RF	2.7	35,000	9.1	7.7	5.9	4.8	2.6	6.3
PhytoGen 367WRF	3.2	41,667	9.5	7.8	6.0	4.6	3.0	3.0
Stoneville 5458B2RF	3.3	42,833	9.0	7.7	6.1	4.9	3.1	4.3
Test average	2.9	38,438	9.2	7.7	6.0	4.7	3.0	4.3
CV, %	10.4	10.4	4.1	3.8	6.3	7.8	15.5	10.8
OSL	0.0077	0.0080	0.2213	0.1537	0.7609	0.4097	0.4592	<0.0001
LSD	0.5	6,978	NS	NS	NS	NS	NS	0.8

For NAWF, numbers represent an average of 10 plants per variety per rep (30 plants per variety).
For Storm resistance, ratings based on a scale of 1-9 where 9 represents maximum storm resistance.
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.

Table 2. Harvest results from the picker harvested LEPA irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2010.

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 ---					
Dyna-Gro 2570B2RF	36.2	58.3	3019	1092	1760	0.5402	589.65	154.02	743.68	90.58	73.91	579.19 a
Stoneville 5458B2RF	34.2	58.6	2859	979	1677	0.5448	533.18	146.71	679.89	85.78	75.58	518.53 ab
PhytoGen 367WRF	35.9	57.9	2779	998	1610	0.5355	534.20	140.89	675.09	83.37	74.14	517.57 ab
Croplan Genetics 3006B2RF	31.5	61.5	2778	875	1707	0.5632	492.62	149.39	642.01	83.34	72.74	485.93 bc
Deltapine 1032B2RF	37.7	54.8	2442	920	1339	0.5517	507.39	117.17	624.56	73.26	76.76	474.54 bc
All-Tex Apex B2RF	33.6	58.8	2610	878	1535	0.5520	484.58	134.35	618.93	78.30	68.70	471.93 bc
NexGen 4010B2RF	32.3	60.2	2526	817	1521	0.5522	451.00	133.05	584.05	75.77	67.57	440.71 bc
FiberMax 1740B2F	35.6	59.3	2339	833	1386	0.5388	448.95	121.26	570.21	70.17	75.58	424.47 c
Test average	34.6	58.7	2669	924	1567	0.5473	505.20	137.11	642.30	80.07	73.12	489.11
CV, %	1.9	2.0	8.1	8.2	7.9	3.0	8.2	7.9	8.2	8.1	--	9.4
OSL	<0.0001	0.0005	0.0243	0.0078	0.0090	0.4985	0.0154	0.0090	0.0226	0.0242	--	0.0239
LSD	1.2	2.1	377	133	218	NS	72.70	19.08	91.70	11.29	--	80.42

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.
$175/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 picker harvested LEPA irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2010.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Apex B2RF	4.0	34.8	79.8	27.7	8.4	1.0	77.9	8.2	3.0	1.0
Croplan Genetics 3006B2RF	4.2	35.8	81.7	30.5	8.1	2.7	77.3	8.0	3.0	1.0
Dyna-Gro 2570B2RF	4.2	34.0	80.5	29.6	9.3	1.0	77.7	8.5	3.0	1.0
Deltapine 1032B2RF	4.4	34.9	81.3	29.4	9.3	1.0	79.0	8.4	3.0	1.0
FiberMax 1740B2F	4.0	34.0	79.3	28.3	7.8	1.3	77.9	7.9	3.0	1.0
NexGen 4010B2RF	4.0	34.9	80.2	31.3	8.0	2.3	77.2	8.4	3.0	1.0
PhytoGen 367WRF	3.6	34.3	79.5	29.4	8.5	1.7	76.5	8.4	3.0	1.0
Stoneville 5458B2RF	4.1	34.5	78.9	30.1	7.8	2.7	76.4	8.7	3.0	1.0
Test average	4.1	34.7	80.2	29.5	8.4	1.7	77.5	8.3	3.0	1.0
CV, %	1.6	1.8	1.2	2.9	3.0	35.8	0.7	1.4	--	--
OSL	<0.0001	0.0498	0.0275	0.0037	<0.0001	0.0087	0.0009	<0.0001	--	--
LSD	0.1	1.1	1.6	1.5	0.4	1.1	1.0	0.2	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level.

TITLE:

Effects of SDI Irrigation Level, Nitrogen Rate, and Harvest Method on Cotton Yield and Fiber Quality at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Wayne Keeling, Randy Boman, Jim Bordovsky, and John Wanjura; Professor, Texas AgriLife Research; Professor and Extension Agronomist-Cotton Texas AgriLife Extension Service, Agricultural Engineer-Irrigation, Texas AgriLife Research; and Agricultural Engineer, USDA-ARS.

MATERIALS AND METHODS:

Plot Size:	4 rows by 400 feet, 3 replications
Planting Date:	May 4, 52,000 seeds/A
Variety:	Stoneville 5458B2RF
Herbicides:	Trifluralin1.3 pt/A PPI
	Caparol 1.5 pt/A PRE
	Roundup PowerMax 22 oz/A EPOST
	Roundup PowerMax 22 oz/A MPOST
Insecticide:	Temik 3.5 lbs/A at planting
Fertilizer:	High Irrigation with Low N – 125-30-0/A
	High Irrigation with High N – 175-30-0/A
	Low Irrigation with Low N – 100-30-0/A
	Low Irrigation with High N – 150-30-0/A
PGR:	16 oz/A Pentia at Early Bloom
Irrigation in-season:	

	Low	High
Preplant/Germ.	1.2”	1.7”
In-Season	4.8”	6.8”
Total	6.0”	8.5”

Harvest Dates:	Picker – October 12
	Stripper – October 29

RESULTS AND DISCUSSION:

This trial was established to evaluate effects of SDI irrigation levels (0.18” and 0.25” maximum daily pumping capacities), nitrogen rate (base rate considering soil residual N levels and expected yield compared to 25-50 lbs higher depending on irrigation level) and picker versus stripper harvest. Cotton was planted May 4 and excellent emergence and stand establishment were achieved. Above average rainfall in June and early July limited irrigation needs until late July. Irrigation was terminated following 2.5” of rain received September 1-2. Additional rain was received September 17 which carried the crop to defoliation in late September.

Plots were harvested with a John Deere 9996 picker or John Deere 7445 stripper. Large seed cotton samples (250 lb/plot) were differentially ginned at the USDA-ARS Cotton Production and Processing Unit laboratory at Lubbock. Lint yields averaged 1273 to 1344 lbs/A for the two harvest methods with highest per acre yields with the stripper harvest, although lint turnout was higher with the picker (Table 1). Within each harvest method, increased yields were produced with the high irrigation treatment, but N rate did not affect yield within each irrigation or harvest method.

Within each harvest method, irrigation or N rate did not affect lint quality as measured by loan value (Table 2). However, overall loan values were higher for the stripper harvest treatments compared to the picker. This was due to higher micronaire values with the picker harvester which resulted in some high micronaire discounts. HVI length, uniformity, and color grades were similar for both harvest methods. Gross revenue was not affected by irrigation or N rate within either harvest system, but higher revenues were achieved with the stripper harvester (Table 3). These gross revenues do not reflect harvest or ginning cost, which will be addressed in the economic analysis.

Table 1. Effects of SDI irrigation level, nitrogen rate, and harvest method on cotton lint yield and turnout at AG-CARES 2010.

		Harvest Method	
		Picker	Stripper
		lbs/A	
High Irrigation			
	High N (175)	1368 a** (34.7)*	1415 a (32.6)
	Base N (125)	1373 a (35.5)	1448 a (32.3)
Low Irrigation			
	High N (125)	1142 a (34.1)	1203 a (32.9)
	Base N (100)	1209 a (35.1)	1311 a (32.8)
Avg.		1273 B*** (34.84) A	1344 A (32.67) B

*percent lint turnout
**lower-case letters compare means within a harvest method
***upper-case letters compare means across harvest methods

Table 2. Effects of SDI irrigation level, nitrogen rate, and harvest method on cotton lint value at AG-CARES 2010.

		Harvest Method	
		Picker	Stripper
		lbs/A	
High Irrigation			
	High N (175)	53.12 a	54.35 a
	Base N (125)	52.33 a	54.50 a
Low Irrigation			
	High N (125)	51.90 a	53.63 a
	Base N (100)	52.13 a	52.85 a
Avg.		52.37 B	53.83 A

Table 3. Effects of SDI irrigation level, nitrogen rate, and harvest method on gross revenues at AG-CARES 2010.

		Harvest Method	
		Picker	Stripper
		lbs/A	
High Irrigation			
	High N (175)	726 a	769 a
	Base N (125)	718 a	787 a
Low Irrigation			
	High N (125)	593 a	645 a
	Base N (100)	631 a	692 a
Avg.		667 B	723 A

TITLE:

Results of the Sub-Surface Drip Irrigated Uniform Cotton Variety Performance Test at Lamesa, AG-CARES, 2010.

AUTHORS:

Jane K. Dever, Carol Mason Kelly, Lyndon Schoenhals and Valerie Morgan, Associate Professor, Post-Doctoral Research Assistant, Research Associate, and Research Assistant

MATERIALS AND METHODS:

Test:	Uniform Cotton Variety, drip-irrigated
Planting Date:	May 19
Design:	Randomized Complete Block
Plot Size:	2-row plots, 25 ft
Row Spacing:	40-in
Planting Pattern:	Solid
Herbicide:	Trifluralin @ 1.3 pt/A applied pre-plant
	Caparol @ 1.5pt/A applied May 22
Fertilizer:	20-10-0-5 300lbs/A applied pre-plant
	32-0-0 30 lbs/A applied June 2 (fertigation)
	32-0-0 30 lbs/A applied June 30 (fertigation)
	32-0-0 30 lbs/A applied July 21 (fertigation)
Irrigations:	4.39 acre-in applied pre-plant
	5.1 acre-in applied May-September
Insecticide:	Temik @ 2.4 lbs/A at planting
Growth Regulator:	Pix @ 16 oz/A applied July 14
Harvest Aid:	Prep @ 21 oz/A + 1% crop oil October 7
	Gramoxone Inteon 24oz/A October 21
Harvest Date:	October 30

RESULTS AND DISCUSSION:

Texas AgriLife Research, in conjunction with the AG-CARES location in Lamesa, provide an important service to seed companies and producers through a fee-based testing system that can evaluate a relatively large number of commercial and pre-commercial varieties in small-plot replicated performance trials. This service allows varieties from different companies and seed developers to be tested together by an independent source. The small-plot replicated trials are intended to evaluate the genetic performance of lines independent of biotechnology traits, so the tests are managed as conventional varieties as opposed to herbicide or insecticide systems. Every effort is made to minimize the effects of insect and weed pressure. The same varieties are tested at 5 locations across the Southern High Plains, including the drip-irrigated site at AG-CARES.

Lint yield is determined by the stripper-harvested plot weight and a lint percentage determined from a ~600 gram grab sample collected randomly from the harvested plot material. Boll size and pulled lint percent are determined from a 50 boll sample obtained from 2 replications of each entry. Maturity and storm resistance ratings are a visual assessment of percent open bolls and a 1 (very loose, considerable storm loss) to 9 (very tight boll, no storm loss) storm resistance rating.

Fifty-five cotton varieties from 8 different seed companies were submitted for variety testing at 5 locations, including the drip-irrigated location at AG-CARES in Lamesa. Average yield was 1,055 pounds of lint per acre with a test coefficient of variation of 14.4% and 213 pounds least significant difference. The highest yielding variety was DP 174RF with a yield of 1,488 pounds of lint per acre , and the top 6 varieties in the test were not significantly different than the highest yielding variety (Table 2). The top-yielding varieties all had relative maturity and storm resistance similar to the test average. Relative maturity of the varieties as indicated by percent open bolls on a given date averaged 70%, ranging from 50% to 80%, and had a fairly high coefficient of variation at 17.0%. This coefficient of variation may be elevated as a result of variable emergence dates due to inadequate top soil moisture at the time of planting. FM 9180B2RF and NG 2549 B2RF had the highest storm-proof rating of 7. Fiber quality evaluations are not available at the time of the 2010 Annual Report publication, and will be added to the website when they do become available.

Table 2. Results of the Uniform Cotton Variety Test drip irrigated, Lamesa AG-CARES, 2010

				Agronomic Properties						% Open		
		% Turnout		% Lint		Boll	Seed	Lint	Seed per	Bolls	Storm	
Designation	Yield	Lint	Seed	Picked	Pulled	Size	Index	Index	Boll	10/04/10	Resistance	Height
Deltapine DP 174 RF	1488	31.0	43.2	39.6	31.2	6.1	10.5	7.2	33.4	70	5	27
Stoneville ST 4554B2RF	1411	28.7	44.9	36.1	29.0	5.9	12.0	7.0	30.7	75	4	25
Stoneville ST 5458B2RF	1389	28.8	41.8	38.7	31.2	5.9	10.0	7.0	32.5	64	5	26
FiberMax FM 9160B2F	1346	29.3	43.6	38.4	31.1	5.8	10.5	6.8	32.8	76	6	23
PhytoGen PHY 367WRF	1334	26.8	40.8	38.9	30.8	5.5	10.0	6.7	31.4	79	3	24
Deltapine DP 1044 B2RF	1285	30.0	46.2	37.6	29.5	5.4	10.5	6.6	30.5	54	6	23
PhytoGen PHY 569WRF	1259	27.7	42.6	38.4	29.7	5.0	9.0	6.0	32.2	78	4	26
All-Tex AT Epic B2RF	1250	30.1	42.6	38.9	31.5	5.7	10.5	7.1	31.5	74	4	24
Deltapine DP 121 RF	1245	28.7	40.2	39.8	31.4	5.6	9.5	6.7	33.4	70	5	25
Stoneville ST 4288B2F	1244	27.9	43.4	35.8	28.6	6.1	11.5	6.7	32.5	74	5	24
Croplan Genetics CG 3220B2RF	1206	29.4	45.3	37.3	29.6	5.9	11.0	6.9	32.0	71	5	23
Croplan Genetics CG 3035RF	1167	29.4	40.8	39.3	30.8	6.2	11.0	7.5	32.1	64	5	24
All-Tex AT 65207 B2RF	1155	28.3	42.2	38.2	30.8	5.4	10.0	6.7	30.7	76	5	25
PhytoGen PHY 519WRF	1147	26.5	41.4	37.7	29.2	5.0	9.5	6.2	30.5	76	6	27
Monsanto 10R052B2R2	1138	29.6	39.3	41.0	31.5	5.4	9.5	7.0	31.1	50	5	25
PhytoGen PHY 565WRF	1130	27.0	42.3	37.2	28.9	4.8	10.0	6.2	29.0	74	4	25
Deltapine DP 1137 B2RF	1114	30.0	40.8	39.2	30.6	5.7	10.5	7.3	30.6	76	5	24
Deltapine DP 1133 B2RF	1110	27.8	40.5	39.6	30.7	5.8	10.0	6.9	33.1	73	5	25
PhytoGen PHY 499WRF	1108	27.2	39.5	39.0	30.5	5.1	10.0	6.9	30.1	64	5	23
All-Tex AT Apex B2RF	1099	25.7	41.7	36.7	28.4	5.6	10.5	6.4	31.8	80	5	25
PhytoGen PHY 375WRF	1094	28.5	41.7	38.7	30.8	5.3	10.0	6.8	30.4	68	4	25
Americot AM 1532 B2RF	1085	27.3	43.3	33.7	28.3	6.4	10.5	6.5	32.9	80	5	24
Bayer CropScience BCSX 1030B2F	1080	28.4	41.8	38.7	30.1	5.5	10.0	6.7	31.7	70	4	24
Deltapine DP 104 B2R2	1068	25.2	45.7	36.7	29.5	5.6	11.0	6.5	31.7	80	5	22
Croplan Genetics CG 3020 B2Rf	1065	25.5	43.5	34.7	27.5	6.0	11.0	6.3	33.4	78	5	22
Deltapine DP 1028 B2RF	1060	29.1	41.7	40.6	31.0	5.2	9.5	6.9	30.7	69	5	24
FiberMax FM 1740B2RF	1058	29.6	43.5	39.1	30.2	5.6	11.0	9.0	25.3	70	5	22
Deltapine DP 0912 B2F	1052	28.2	42.6	38.3	30.8	6.0	10.5	7.0	32.6	78	4	22
FiberMax FM 9170B2F	1050	28.8	43.2	38.4	31.0	5.5	11.0	7.3	30.0	65	5	21
Monsanto 09R348B2R2	1050	28.0	41.3	37.8	34.0	5.3	10.5	6.9	29.1	75	5	24

Table 2. cont.

Deltapine DP 555BG/RR	1045	30.4	46.0	38.9	31.8	5.0	8.0	5.8	34.0	70	5	23
FiberMax FM 9058F	1036	26.7	43.0	36.8	28.3	5.7	11.0	7.0	30.2	68	6	21
NexGen NG3410 RF	1022	26.5	44.4	37.7	29.5	6.7	12.0	7.5	33.5	66	6	24
NexGen NG4111 RF	1015	26.8	39.1	38.0	29.9	5.4	10.0	6.7	30.8	78	6	24
Bayer CropScience BCSX 1010B2F	1013	27.9	44.0	36.5	29.0	5.7	11.5	6.9	30.0	63	4	24
NexGen NG4010 B2RF	987	27.5	44.8	35.9	28.4	5.2	10.0	6.0	31.3	75	5	22
Monsanto 09R637R2	974	28.6	40.5	38.9	30.0	5.3	9.5	6.5	32.1	78	4	23
All-Tex AT 81220 B2RF	970	25.9	42.1	36.7	29.1	5.4	10.0	6.2	31.5	79	5	23
Croplan Genetics CG 4020B2RF	959	27.2	45.3	36.8	28.6	5.9	10.5	6.6	32.9	69	4	23
Deltapine DP 1032B2RF	958	28.7	39.6	40.4	31.8	5.3	9.0	6.4	33.4	68	4	24
FiberMax FM 9180B2F	957	25.7	42.5	36.2	28.0	6.1	11.5	6.8	32.4	71	7	21
NexGen NG4012 B2RF	956	28.2	42.8	38.3	29.8	5.2	10.0	6.5	30.9	75	5	24
NexGen NG3348 B2RF	935	26.7	44.9	36.5	29.2	5.5	11.0	6.5	31.1	76	6	22
FiberMax FM 1845LLB2	922	26.1	43.6	35.8	28.1	5.5	12.0	6.9	28.5	63	5	23
Croplan Genetics CG 3520B2RF	920	27.3	43.3	38.0	29.9	4.7	10.5	6.4	27.6	74	4	22
Croplan Genetics CGX 1001B2RF	910	25.6	45.6	34.2	26.9	4.9	10.5	5.5	30.6	65	5	23
NexGen NG2549 B2RF	864	27.0	45.0	35.5	28.9	5.1	10.5	6.0	30.1	76	7	22
Seed Source Genetics SSG HQ 210 CT	860	29.0	46.2	37.0	30.2	6.1	9.0	5.7	40.2	69	4	21
FiberMax FM 958	854	26.8	43.2	37.0	29.0	6.3	11.5	7.2	32.5	65	6	22
All-Tex AT 81158 RF	829	24.6	43.9	35.4	27.3	5.6	11.0	6.3	31.3	58	5	24
Bayer CropScience BCSX 1040B2F	818	22.8	42.5	33.4	25.7	5.7	11.5	6.2	30.9	70	4	22
PhytoGen PHY 72	776	27.2	45.5	34.9	27.4	6.0	11.5	6.3	33.5	64	4	24
Seed Source Genetics SSG HQ 212 CT	750	29.4	46.2	37.0	29.9	5.6	10.0	6.0	34.3	50	4	19
FiberMax FM 1773LLB2	735	26.9	46.7	35.9	28.6	5.9	12.0	7.1	29.5	50	5	22
Stoneville ST 5288B2F	707	26.8	41.2	39.4	31.2	5.1	9.5	6.2	32.6	75	5	22
Mean	1055	27.7	43.0	37.5	29.7	5.6	10.4	6.6	31.5	70	5	23
c.v.%	14.4	5.1	5.1	3.3	3.9	6.3	4.9	6.6	6.0	17.0	16.1	7.8
LSD 0.05	213	2.0	3.1	2.5	2.3	0.7	1.0	0.9	3.8	17	1	3

TITLE:

Results of the Dryland Uniform Cotton Variety Performance Test at Lamesa, AG-CARES, 2010.

AUTHORS:

Jane K. Dever, Carol Mason Kelly, Lyndon Schoenhals and Valerie Morgan, Associate Professor, Post Doctoral Research Assistant, Research Associate and Research Assistant

MATERIALS AND METHODS:

Test:	Uniform Cotton Variety, dryland
Planting Date:	May 19
Design:	Randomized Complete Block
Plot Size:	2-row plots, 30 ft
Row Spacing:	40-in
Planting Pattern:	Solid
Herbicide:	Trifluralin @ 1.3 pt/A applied pre-plant
	Caparol @ 1.5pt/A applied pre-plant
Fertilizer:	20-10-0-5 @ 200 lbs/A applied pre-plant
Irrigations:	17.2 inches of rainfall (April-November)
Insecticide:	Temik @ 2.4lbs/A at planting
Harvest Date:	November 1

RESULTS AND DISCUSSION:

The AG-CARES facility provides an excellent opportunity to evaluate varieties in small-plot replicated trials under both irrigated and dryland conditions. Testing varieties in dryland conditions presents some of the same challenges of dryland cotton production, such as waiting for a planting rain which may favor early maturing varieties if it comes late, and trying to plant after a rain before the soil dries. The dryland location at Lamesa AG-CARES is one of the official locations included in the National Cotton Variety Testing Program, so data are reported even under difficult conditions. The dryland location also allows growers to evaluate variety performance in unpredictable situations, but other parameters, such as maturity, storm resistance and plant height are also important in assessing overall performance when yield may be influenced as much by field conditions as variety genetic response.

Fifty-five cotton varieties from 8 different seed companies were submitted for variety testing at 5 locations, including a dryland location at AG-CARES in Lamesa. A combination of minimal rainfall, high winds, and cool temperatures created unfavorable conditions for emergence and seedling development. These adverse weather conditions early in the growing season resulted in this test having a high coefficient of variation of 26.1 %. The average yield for the test was 725 pounds of lint per acre with yields ranging from 1,128 to 458 pounds of lint per acre. The top 6 varieties were not significantly different from the highest yielding variety, Monsanto 10R052B2R2 (Table 1). Relative maturity of the varieties as indicated by percent open bolls on October 4, ranged from 53% for Monsanto 10R052B2R2 to 84% for PhytoGen 569WRF, with a test average of 73%. Storm resistance averaged 5 on a scale of 1-9 and ranged from 3 to 6. Plant height averaged 26 inches and ranged from 21 inches for SSG HQ 210 CT to 30 inches for Monsanto 10R052B2R2, DP 1137B2RF, and AM 1532B2RF.

The uniform variety tests are part of the National Cotton Variety Testing Program, and include National Standards from each of the major growing regions of the United States cotton belt. The National Standards are kept for a 3-year cycle and either replaced or continued. The standards for the 2010 test are the same as for 2008 and 2009 and include PHY 375WRF for the Mid-Atlantic region, DP 555 BG/RR for the Southeast region, ST 4554 B2F for the Mid-South region, FM 9058F for the Southwest region and PhytoGen 72 for the West region. Some unadapted varieties with older technology are included in these tests because they are national or regional standards for the National Cotton Variety Testing program. There has been a NCVT location in the Plains region since the inception of the program in 1950.

Table 1. Results of the dryland uniform variety test at the AG-CARES farm, Lamesa 2010

						Agronomic Properties				% Open		
		% Turnout		% Lint		Boll	Seed	Lint	Seed per	Bolls	Storm	
Designation	Yield	Lint	Seed	Picked	Pulled	Size	Index	Index	Boll	10/04/10	Resistance	Height
Monsanto 10R052B2R2	1128	31.3	41.2	40.8	34.3	5.4	9.2	6.6	33.5	53	5	30
All-Tex AT Epic B2RF	964	29.7	42.7	36.6	28.2	6.0	10.3	6.6	33.2	80	4	28
PhytoGen PHY 375WRF	961	29.0	45.1	38.7	29.8	5.4	9.6	6.9	30.7	80	3	28
PhytoGen PHY 499WRF	934	29.2	42.9	39.0	30.2	5.5	10.2	6.8	31.4	76	5	29
Stoneville ST 4554B2RF	925	29.9	45.1	37.1	28.5	5.7	10.6	6.8	31.3	64	4	26
Croplan Genetics CG 3035RF	924	29.6	42.7	39.5	30.8	5.6	9.8	6.7	33.2	73	4	28
Deltapine DP 121 RF	903	29.1	40.4	40.5	30.5	5.0	9.3	6.5	30.8	75	3	28
Stoneville ST 5458B2RF	869	28.4	46.3	34.9	28.1	5.7	9.8	6.2	32.0	78	4	27
PhytoGen PHY 569WRF	864	26.4	44.2	37.2	28.5	4.6	9.1	5.6	30.6	84	3	28
Deltapine DP 1044 B2RF	845	28.4	44.8	36.8	29.5	5.0	9.6	5.9	31.0	73	5	25
Deltapine DP 174 RF	838	30.8	42.0	40.4	30.7	5.3	9.8	7.0	30.6	73	4	28
Monsanto 09R637R2	830	29.9	44.6	39.5	29.7	5.0	9.4	6.4	31.3	78	4	28
All-Tex AT 65207 B2RF	826	31.0	46.1	38.4	29.6	5.2	9.7	6.2	32.0	78	5	27
Deltapine DP 555BG/RR	816	31.2	43.6	36.6	29.2	4.9	7.5	5.3	33.5	76	6	27
Deltapine DP 1133 B2RF	808	31.5	43.0	40.7	27.5	4.9	9.3	6.7	29.7	74	4	28
Stoneville ST 5288B2F	807	27.8	41.0	38.6	29.8	4.9	8.5	5.8	32.6	80	6	27
All-Tex AT 81220 B2RF	807	27.2	45.4	35.3	27.4	5.3	9.8	5.7	33.1	73	5	26
PhytoGen PHY 519WRF	794	26.4	43.7	39.4	29.7	4.5	9.0	6.0	29.3	76	4	28
FiberMax FM 9170B2F	793	29.2	46.1	37.9	29.4	4.8	10.2	6.4	28.2	79	5	25
PhytoGen PHY 367WRF	791	27.7	46.5	37.3	28.1	4.8	9.5	6.1	29.8	73	4	26
FiberMax FM 1740B2RF	787	30.3	45.0	38.2	29.4	5.3	10.3	6.7	30.1	75	5	25
Deltapine DP 104 B2R2	776	24.9	49.9	33.6	26.4	6.2	11.2	5.9	35.4	79	5	24
Stoneville ST 4288B2F	775	26.7	46.6	35.1	26.8	5.3	10.9	6.2	30.0	55	5	25
PhytoGen PHY 565WRF	772	27.2	44.4	36.1	28.1	4.1	9.0	5.4	27.1	75	4	28
Bayer CropScience BCSX 1010B2F	770	27.8	45.7	36.3	27.9	5.4	10.6	6.4	30.5	78	4	27

Table 1 cont.

Deltapine DP 1137 B2RF	768	31.3	42.7	40.6	30.8	5.5	9.6	6.7	33.3	70	5	30
Croplan Genetics CG 3520B2RF	767	25.2	45.6	36.1	27.3	5.1	10.2	6.1	30.5	76	5	27
Deltapine DP 1028 B2RF	761	31.8	44.3	39.3	28.8	5.3	9.2	6.3	32.8	70	4	29
Croplan Genetics CG 3220B2RF	747	28.1	47.1	37.2	28.8	5.5	10.8	6.6	30.8	76	5	26
Seed Source Genetics SSG HQ 210 CT	704	30.1	49.3	37.0	29.0	4.9	8.8	5.3	33.8	64	5	21
NexGen NG4010 B2RF	699	25.8	44.4	35.3	26.8	5.0	10.1	5.8	30.5	78	4	26
Deltapine DP 1032B2RF	698	28.9	43.3	39.4	29.9	4.7	8.7	6.0	30.8	76	4	28
Seed Source Genetics SSG HQ 212 CT	682	30.8	49.1	37.0	28.9	5.4	9.6	5.8	34.1	64	5	22
NexGen NG4012 B2RF	676	28.7	43.3	36.9	28.5	5.3	9.9	6.0	32.2	68	5	26
NexGen NG4111 RF	668	27.7	42.4	38.4	29.4	5.3	10.1	6.5	31.4	74	5	26
FiberMax FM 9058F	667	27.6	46.1	34.5	24.8	5.7	10.8	6.7	29.6	70	6	26
FiberMax FM 958	652	27.3	44.1	36.8	19.3	5.4	10.8	6.5	30.8	76	6	25
All-Tex AT 81158 RF	648	24.6	44.1	34.4	25.9	5.2	10.1	5.6	32.0	76	5	27
Deltapine DP 0912 B2F	636	27.6	44.5	35.1	29.3	5.5	9.8	6.3	30.4	73	4	28
All-Tex AT Apex B2RF	636	24.7	42.1	35.2	26.5	5.0	9.8	5.6	31.8	80	5	28
FiberMax FM 1773LLB2	624	25.8	44.7	34.9	26.7	5.5	11.3	6.2	30.5	65	5	25
Monsanto 09R348B2R2	618	26.3	42.3	36.5	27.9	5.5	10.1	6.2	32.5	65	5	26
Croplan Genetics CG 4020B2RF	599	23.9	45.5	35.2	25.7	4.9	10.3	5.8	29.6	78	5	28
FiberMax FM 1845LLB2	594	25.0	42.5	34.5	27.1	5.7	12.0	6.6	30.1	78	6	23
Americot AM 1532 B2RF	587	26.2	44.8	34.9	26.3	5.4	10.7	6.1	30.9	76	5	30
Bayer CropScience BCSX 1030B2F	584	29.5	47.3	39.5	29.9	4.9	9.3	6.4	30.3	76	5	26
PhytoGen PHY 72	561	26.6	45.7	33.2	26.3	6.2	11.0	6.3	32.5	68	4	25
FiberMax FM 9180B2F	552	25.4	45.1	32.7	25.0	6.0	11.5	6.5	30.5	75	6	25
Croplan Genetics CG 3020 B2RF	541	24.0	44.5	35.6	27.1	5.5	10.3	5.8	33.9	79	4	27
FiberMax FM 9160B2F	527	28.2	43.5	37.8	29.9	5.2	9.7	6.1	31.9	81	6	23
NexGen NG3348 B2RF	498	25.4	45.1	32.8	26.3	5.7	10.0	5.8	32.6	73	6	23
Bayer CropScience BCSX 1040B2F	496	21.7	41.9	32.2	24.3	5.5	11.5	5.7	30.7	74	5	26
NexGen NG3410 RF	486	28.2	46.9	36.1	17.8	5.5	10.9	6.4	31.0	74	5	25
Croplan Genetics CGX 1001B2RF	472	24.9	47.6	33.3	25.3	4.7	10.1	5.3	29.4	71	5	24
NexGen NG2549 B2RF	458	26.4	46.6	35.4	31.2	4.4	9.3	5.3	29.7	64	6	24
Mean	725	27.8	44.6	36.8	28.3	5.3	9.9	6.2	31.3	73	5	26
c.v.%	26.1	6.0	6.0	3.4	5.8	6.8	5.4	6.1	6.1	11.9	14.2	7.3
LSD 0.05	223	2.0	3.1	2.1	2.7	0.6	0.9	0.6	3.2	10	1	2

TITLE:

Replicated Dryland Conventional Cotton Variety Demonstration, AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Jeff Wyatt, Tommy Doederlein, Randy Boman, Mark Kelley, and Chris Ashbrook; EA-ANR Dawson County, EA-IPM Dawson/Lynn Counties, Extension Agronomist-Cotton, Extension Program Specialist II-Cotton, and Extension Assistant-Cotton.

MATERIALS AND METHODS:

Varieties: All-Tex A102, All-Tex 1203, All-Tex LA122, Downer Cotton Genetics 56, Downer Cotton Genetics 59, Downer Cotton Genetics 74, FiberMax 9058F (included as a transgenic check), FiberMax 958 (brown bag), Seed-Tec Genetics CT-210, and Seed-Tec Genetics CT-212

Experimental design: Randomized complete block with 3 replications

Seeding rate: 4 seeds/row-ft in solid planted 40-inch row spacing (John Deere MaxEmerge XP vacuum planter)

Plot size: 4 rows by variable length of field (695 to 885 ft)

Planting date: 19-May

Weed management: The entire project was managed as conventional cotton. Trifluralin was applied preplant incorporated at 1 pt/acre across all varieties on 15-April. A preemergence application of 1.5 pts/acre Caparol and 32 oz/a Roundup WeatherMax was made on 20-May. Two cultivations were performed.

Rainfall:

April:	3.02"	June:	2.43"	August:	0.15"
May:	0.87"	July:	4.29"	September:	4.66"

Total rainfall: 15.42"

Insecticides: This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer: Applied 200 lbs/acre of 20-10-05 fertilizer on 30-March supplying 40 lbs N/acre.

Harvest aids: Harvest aids included 21 oz/acre Prep + 1.5 oz/acre ET with 1% v/v crop oil on 21-October followed by 24 oz/acre Gramoxone Inteon with 0.25% v/v NIS on 1-November.

Harvest: Plots were harvested on 8-November using a commercial John Deere 7445 with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.

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

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

Ginning cost and seed values: Ginning costs were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $175/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed costs and technology fees were not included in the determination of net value due to differences weed control systems.

RESULTS AND DISCUSSION:

All entries in this trial were managed as conventional cotton even though a FiberMax 9058F (Roundup Ready Flex) variety was included for comparison. Weed pressure at this site would generally be considered medium and consisted mainly of kochia, russian thistle, and puncturevine. Marginal soil moisture and hot, dry conditions after planting resulted in a significantly delayed stand establishment and stress on the trial. **Final stand was variable, but was deemed adequate for harvesting.**

Significant differences were noted for lint turnout and loan value as well some fiber quality parameters measured (Tables 1 and 2). Lint turnout ranged from 35.0% for All-Tex LA122 to 31.3% for Seed-Tec Genetics CT 212. Lint yields averaged 524 lbs/acre with no significant differences among varieties noted. Lint loan values ranged from a low of $0.5487/lb to a high of $0.5698/lb for Seed-Tec Genetics CT 210 and Downer Cotton Genetics 74, respectively. After adding lint and seed value, total value/acre averaged $369.89/acre with no significant differences observed. When subtracting ginning costs, the net value/acre among varieties averaged $321.51/acre. **Net value/acre does not include seed costs (and technology fees for the FiberMax 9058F), or weed control cost.**

Micronaire values ranged from a low of 3.8 for Downer Cotton Genetics 74 to a high of 4.5 for Downer Cotton Genetics 59. Staple averaged 35.1 across all varieties with a low of 34.0 (Seed-Tec Genetics CT-210) and a high of 36.4 (FiberMax 9058F). Uniformity ranged from a low of 80.1 (Seed-Tec Genetics CT 212) to a high of 81.2 (FiberMax 958), and strength ranged from a low of 29.6 g/tex for Downer Cotton Genetics 56 to a high of 32.0 g/tex for Seed-Tec Genetics CT-212. Significant differences were observed among varieties for percent elongation (7.5 average) and +b or yellowness (7.3 average), but not for Rd or reflectance (81.2 avg) and leaf grade (1.4 avg). Color grades were mostly 21 and 31 across all varieties.

Although no differences were observed for yield related parameters due to non-uniform stand and emergence, fiber quality differences were noted. Additional multi-site and multi-year applied research is needed to evaluate conventional varieties across a series of environments.

ACKNOWLEDGMENTS:

Appreciation is expressed to Dr. Danny Carmichael, AgriLife Research Associate - AG-CARES, Lamesa for his cooperation with this project. Further assistance was provided by Dr. Jane Dever - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. We also greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

DISCLAIMER CLAUSE:

Trade names of commercial products used in this report are included only for better understanding and clarity. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M 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 dryland conventional variety demonstration, AG-CARES Farm, Lamesa, TX, 2010.

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 ------------				
FiberMax 9058F	33.2	55.4	1742	579	965	0.5678	328.62	84.46	413.08	52.26	360.82
All-Tex A102	31.5	53.2	1857	585	987	0.5617	328.61	86.35	414.96	55.70	359.26
All-Tex LA122	35.0	51.2	1638	574	839	0.5553	318.67	73.37	392.04	49.15	342.90
Downer Cotton Genetics 74	32.3	55.3	1629	525	900	0.5698	299.37	78.78	378.15	48.86	329.29
FiberMax 958	32.3	54.2	1624	524	880	0.5633	295.02	77.00	372.02	48.71	323.31
Downer Cotton Genetics 56	31.9	55.1	1629	519	898	0.5500	285.33	78.55	363.88	48.86	315.02
Downer Cotton Genetics 59	32.2	53.8	1601	515	862	0.5532	285.00	75.42	360.42	48.04	312.38
All-Tex 1203	32.8	54.6	1482	486	810	0.5660	275.04	70.85	345.88	44.46	301.42
Seed-Tec Genetics CT212	31.3	54.1	1547	485	836	0.5632	272.98	73.19	346.16	46.42	299.75
Seed-Tec Genetics CT210	32.5	55.4	1377	447	763	0.5487	245.52	66.75	312.27	41.31	270.96
Test average	32.5	54.2	1613	524	874	0.5599	293.42	76.47	369.89	48.38	321.51
CV, %	3.0	3.5	12.4	12.2	12.6	1.2	12.2	12.6	12.3	12.4	12.2
OSL	0.0120	0.2490	0.3073	0.2270	0.3808	0.0052	0.1746	0.3781	0.2339	0.3080	0.2159
LSD	1.7	NS	NS	NS	NS	0.0111	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.
$175/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 dryland conventional variety demonstration, AG-CARES Farm, Lamesa, TX, 2010.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex 1203	4.2	35.3	81.0	31.7	7.2	1.3	80.3	7.5	2.7	1.0
All-Tex A102	4.1	35.3	80.7	29.9	7.6	1.0	81.5	7.3	2.7	1.0
All-Tex LA122	4.4	34.9	81.1	29.9	8.7	2.0	81.1	7.2	3.0	1.0
Downer Cotton Genetics 56	4.3	34.5	80.6	29.6	7.8	1.3	81.1	7.6	2.0	1.0
Downer Cotton Genetics 59	4.5	34.6	80.9	30.5	7.2	1.0	80.8	7.5	2.7	1.0
Downer Cotton Genetics 74	3.8	35.6	80.4	30.2	6.9	1.7	81.4	7.6	2.0	1.0
FiberMax 9058F	4.1	36.4	80.6	30.3	6.3	1.7	82.1	7.1	2.7	1.0
FiberMax 958	4.4	35.6	81.2	32.0	6.5	1.3	81.4	7.1	3.0	1.0
Seed-Tec Genetics CT210	4.4	34.0	80.3	31.3	8.0	1.3	80.8	7.2	2.7	1.0
Seed-Tec Genetics CT212	4.3	34.8	80.1	32.0	8.3	1.0	81.9	7.3	2.3	1.0
Test average	4.2	35.1	80.7	30.7	7.5	1.4	81.2	7.3	2.6	1.0
CV, %	2.9	1.2	0.8	2.4	2.6	39.1	1.1	2.8	--	--
OSL	<0.0001	<0.0001	0.4789	0.0027	<0.0001	0.3772	0.4684	0.0442	--	--
LSD	0.2	0.7	NS	1.3	0.3	NS	NS	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, NS - not significant.

TITLE:

Replicated Dryland RACE Variety Demonstration, AG-CARES, Lamesa, TX, 2010.

AUTHORS:

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MATERIALS AND METHODS:

Varieties: All-Tex Epic RF, Croplan Genetics 3220B2RF, Dyna-Gro 2570B2RF, Deltapine 1044B2RF, FiberMax 9160B2F, NexGen 3348B2RF, PhytoGen 367WRF, and Stoneville 5458B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 4 seeds/row-ft in solid planted 40-inch row spacing (John Deere MaxEmerge XP vacuum planter)

Plot size: 4 rows by length of field (~850 ft)

Planting date: 19-May

Weed management: Trifluralin was applied preplant incorporated at 1.3 pt/acre across all varieties on 7-April. The entire test was rod-weeded prior to planting. Caparol was applied at 1.5 pt/acre on 15-May and Roundup PowerMax was applied over-the-top on 16-June at 32 oz/acre with AMS. One in-season cultivation to install furrow dikes was conducted in early July.

Rainfall: April:	3.02"	June:	2.43"	August:	0.15"
May:	0.87"	July:	4.29"	September:	4.66"

Total rainfall: 15.42"

Insecticides: This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer: Applied 200 lbs/acre of 20-10-05 fertilizer on 30-March supplying 40 lbs N/acre.

Harvest aids: Harvest aids included 21 oz/acre Prep + 1.5 oz/acre ET with 1% v/v crop oil on 21-October followed by 24 oz/acre Gramoxone Inteon with 0.25% v/v NIS on 1-November.

Harvest: Plots were harvested on 8-November using a commercial John Deere 7445 with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.

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

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

Ginning cost and seed values: Ginning costs were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $175/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed costs and technology fees were determined by variety on a per acre basis using the Plains Cotton Growers Seed Cost Calculator based on 4.0 seeds/row-ft.

RESULTS AND DISCUSSION:

Weed pressure at this site would generally be considered light to medium and consisted mainly of silverleaf nightshade, pigweed, morningglory spp. "escapes", and puncturevine. Hot, dry conditions during and after planting resulted in delayed emergence and significant stress in the trial. Lack of rainfall during August limited yield potential.

Agronomic data including plant population, nodes above white flower (NAWF), and boll storm resistance are included in Table 1. Stand counts taken on 17-June indicated no significant differences among varieties with a test average of 28,646 plants/acre. Stand counts ranged from a high of 36,667 plants/acre for PhytoGen 367WRF to a low of 24,167 for Dyna-Gro 2570B2RF. Weekly NAWF counts were taken beginning 21-July to 4-August. Averages were 8.3 (21-July), 6.3 (28-July), and 4.5 (4-August). Significant differences among varieties were observed for the 28-July and 4-August observations only (alpha=0.10). Values on 28-July ranged from a low of 5.8 for NexGen 3348B2RF to a high of 6.6 for Dyna-Gro 2570B2RF and Deltapine 1044B2RF. By 4-August, all varieties had reached cutout (NAWF=5) and values ranged from a high of 5.0 for Dyna-Gro 2570B2RF to a low of 3.9 for PhytoGen 367WRF. Just prior to harvest on 8-November, a visual observation of storm resistance was recorded for each variety in all three replications. The ratings were on a scale of 1-9 where 1 represents the least storm resistance. Significant differences were observed among varieties and values ranged from a high of 7.7 (NexGen 3348B2RF) to a low of 3.5 (PhytoGen 367WRF).

Significant differences were noted for all yield and most fiber quality parameters measured (Tables 2 and 3). Lint turnout ranged from 36.7% for All-Tex Epic RF to 30.8% for FiberMax 9160B2F. Lint yields varied from a low of 500 lb/acre (NexGen 3348B2RF) to a high of 872 lb/acre (PhytoGen 367WRF). Lint loan values ranged from a low of \$0.5383/lb to a high of \$0.5622/lb for Stoneville 5458B2RF and Dyna-Gro 2570B2RF, respectively. After adding lint and seed value, total value/acre ranged from a low of \$350.89 for NexGen 3348B2RF, to a high of \$600.74 for PhytoGen 367WRF. When subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of \$453.91 (PhytoGen 367WRF) to a low of \$237.02 (NexGen 3348B2RF), a difference of \$216.89.

Micronaire values ranged from a high of 4.8 for Croplan Genetics 3220B2RF, Dyna-Gro 2570B2RF, Deltapine 1044B2RF and Stoneville 5458B2RF to a low of 4.0 for NexGen 3348B2RF and the test average was 4.6. The test average staple was 34.6 and FiberMax 9160B2F had the highest with 35.8 while All-Tex Epic RF and Stoneville 5458B2RF had the lowest with 33.9. Uniformity was highest for Dyna-Gro 2570B2RF and FiberMax 9160B2F (81.8%) and lowest for Stoneville 5458B2RF (79.6%). Strength values averaged 30.2 g/tex across all varieties and ranged from a high of 31.2 g/tex for Dyna-Gro 2570B2RF to a low of 29.7 g/tex for Croplan Genetics 3220B2RF. Color grade components of Rd (reflectance) and +b (yellowness) averaged 80.2 and 7.8, respectively. This resulted in color grades of mostly 21 and 31. Leaf grades were mostly 1 and 2 across varieties.

These data indicate that substantial differences can be obtained in terms of net value/acre due to variety selection. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

ACKNOWLEDGMENTS:

Appreciation is expressed to Dr. Danny Carmichael, AgriLife Research Associate - AG-CARES, Lamesa for his cooperation with this project. Further assistance was provided by Dr. Jane Dever - Texas AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. We also 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. In-season plant measurement results from the dryland RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2010.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of			Storm resistance
	17-Jun		21-Jul	28-Jul	4-Aug	8-Nov
	plants/row-ft	plants/acre				rating (1-9)
All-Tex Epic RF	2.1	27,500	8.7	6.3	4.4	5.7
Croplan Genetics 3220B2RF	1.9	24,333	8.6	6.2	4.4	4.8
Dyna-Gro 2570B2RF	1.8	24,167	9.1	6.6	5.0	5.2
Deltapine 1044B2RF	2.4	31,167	8.6	6.6	4.9	5.3
FiberMax 9160B2F	2.1	27,667	8.4	6.4	4.7	7.5
NexGen 3348B2RF	2.3	29,500	8.3	5.8	4.1	7.7
PhytoGen 367WRF	2.8	36,667	8.3	6.1	3.9	3.5
Stoneville 5458B2RF	2.2	28,167	8.4	6.5	4.6	6.3
Test average	2.2	28,646	8.6	6.3	4.5	5.8
CV, %	20.2	20.0	2.0	4.5	9.0	9.5
OSL	0.3173	0.2575	0.0014	0.0633†	0.0622†	<0.0001
LSD	NS	NS	0.3	0.4	0.6	1.0

For NAWF, numbers represent an average of 10 plants per variety per rep (30 plants per variety).

For Storm resistance, ratings based on a scale of 1-9 where 9 represents maximum storm resistance.

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.

Table 2. Harvest results from the dryland RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2010.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value
	-------- % --------		------------- lb/acre -------------			$/lb	--- $/acre ---					
PhytoGen 367WRF	34.9	51.9	2501	872	1299	0.5585	487.12	113.62	600.74	75.03	71.81	453.91 a
All-Tex Epic RF	36.7	53.1	2314	850	1228	0.5428	461.55	107.45	569.00	69.41	57.91	441.67 ab
Stoneville 5458B2RF	34.7	51.8	2439	846	1263	0.5383	455.24	110.53	565.76	73.18	73.20	419.39 b
Dyna-Gro 2570B2RF	35.3	52.5	2124	750	1115	0.5622	421.80	97.55	519.35	63.73	71.58	384.04 c
Deltapine 1044B2RF	33.1	51.8	2292	758	1186	0.5528	418.83	103.81	522.63	68.76	72.04	381.84 c
Croplan Genetics 3220B2RF	34.5	54.3	2047	706	1111	0.5537	390.79	97.23	488.02	61.42	70.45	356.15 c
FiberMax 9160B2F	30.8	50.8	2019	622	1027	0.5620	349.74	89.82	439.56	60.57	73.20	305.79 d
NexGen 3348B2RF	31.0	53.8	1614	500	869	0.5500	274.88	76.01	350.89	48.43	65.44	237.02 e
Test average	33.9	52.5	2169	738	1137	0.5525	407.49	99.50	506.99	65.07	69.45	372.48
CV, %	3.6	1.8	4.0	3.9	4.0	1.2	3.9	4.0	3.9	4.0	--	4.6
OSL	0.0003	0.0100	<0.0001	<0.0001	<0.0001	0.0067	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001
LSD	2.1	1.7	154	50	80	0.0121	27.89	7.04	34.90	4.60	--	30.31

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$175/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 dryland RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2010.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Epic RF	4.7	33.9	80.7	30.3	9.0	1.0	79.8	8.1	2.3	1.0
Croplan Genetics 3220B2RF	4.8	34.5	81.0	29.7	8.8	1.0	80.5	8.0	2.3	1.0
Dyna-Gro 2570B2RF	4.8	34.7	81.8	31.2	9.1	1.0	80.0	8.0	2.3	1.0
Deltapine 1044B2RF	4.8	34.7	80.9	30.0	9.4	1.3	81.0	7.6	2.3	1.0
FiberMax 9160B2F	4.5	35.8	81.8	30.3	6.2	2.3	81.5	7.2	3.0	1.0
NexGen 3348B2RF	4.0	34.6	81.5	30.2	7.5	2.3	79.3	7.8	3.0	1.0
PhytoGen 367WRF	4.5	34.9	80.9	30.1	8.4	1.7	79.9	7.8	2.7	1.0
Stoneville 5458B2RF	4.8	33.9	79.6	30.1	8.0	1.7	79.5	8.2	2.7	1.0
Test average	4.6	34.6	81.0	30.2	8.3	1.5	80.2	7.8	2.6	1.0
CV, %	2.7	1.2	0.6	2.1	3.0	37.8	0.6	2.1	--	--
OSL	<0.0001	0.0017	0.0008	0.2921	<0.0001	0.0485	0.0005	0.0001	--	--
LSD	0.2	0.7	0.8	NS	0.4	1.0	0.8	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, NS - not significant.

TITLE:

Results of the Root-Knot Nematode Cotton Variety Performance Test and Nursery at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Jane K. Dever, Terry A. Wheeler, Carol Mason Kelly, Lyndon Schoenhals, and Valerie Morgan, Associate Professor, Professor, Post Doctoral Research Assistant, Research Associate, and Research Assistant

MATERIALS AND METHODS:

Test:	Root-Knot Nematode Resistance Cotton Variety Trial
Planting Date:	May 12
Design:	Randomized Complete Block
Plot Size:	2-row plots, 20 ft
Row Spacing:	40-in
Planting Pattern:	Solid
Herbicide:	Trifluralin @ 1.3 pt/A applied pre-plant
	Caparol @ 1.5 pt/A applied May 14
Fertilizer:	10-34-0 116 lbs/A applied pre-plant
Irrigations:	5.1 acre-in. applied May-September
Insecticide:	Temik @ 2.4 lbs/A at planting
Harvest Aids:	Prep 21 oz/A + 2oa E. T. + 1% crop oil September 29
	Gramoxone Inteon @ 24 oz/A applied October 9
Harvest Date:	October 26

RESULTS AND DISCUSSION:

Some locations at the AG-CARES facility provide an excellent opportunity to evaluate a number of commercial, pre-commercial and breeding strains in small-plot replicated trials under root-knot nematode pressure. Texas AgriLife Research provides a fee-based testing service for seed companies to evaluate their products in the same test with other varieties, and allows producers access to independently-generated performance data in production situations that may resemble their own. In addition, the AgriLife Research cotton breeding program at Lubbock utilizes the same location to select progeny from breeding populations with nematode-tolerant parent and advance promising lines for yield testing.

Forty cotton varieties and experimental strains were submitted for small-plot, replicated testing in a field where root-knot nematodes were known to have been present. Bacterial blight was also present in the field this year allowing for an additional resistance rating to be reported for this test. Varieties were rated as resistant (R), partially resistant (P), or susceptible (S). The highest-yielding variety was NG 411RF at 1,357 pounds of lint per acre. This variety allowed one of the higher levels of nematode reproduction in the test at 4200 root-knot nematodes/500 cc soil but was rated as resistant to bacterial blight (Table 3). Varieties that allowed low levels of nematode reproduction include DP 174 RF, PHY 367 WRF, DP 1044 B2RF, AT EpicRF, ST 5488B2RF, ST 4288B2F, CG 3520B2RF, and Monsanto 10R052B2R2. Test yield average was 1,100 pounds per acre with a coefficient of variation of 13.6 %. Emergence, moisture and growing conditions were excellent and weed pressure low, contributing to the relatively low coefficient of variation for the test. CG 3220B2RF allowed the highest level of nematode reproduction, followed by FM 1740B2RF, and NG 4111RF. The top fourteen varieties were not significantly different than the highest yielding variety (Table 3). Fiber quality is not available in time for the publication of the report and will be added to the website at a later date.

In 2008, forty-two new populations were created from crosses with root-knot nematode resistant lines and elite breeding material. No new crosses have been made, but selection continues with these populations. Seed of the resistant F_3 populations, 42 selections from the 2009 nursery and appropriate check varieties were planted in 280 progeny rows in 2010. A total of 173 individual plants were selected from the F_3 populations, and 13 plants from the advanced generation selections. Three rows were selected for 2011 yield testing. Two of the rows selected for yield testing had excellent storm tolerance, a weakness in currently available root-knot nematode varieties. All selections will undergo greenhouse screening prior to planting in 2011. F_3:F_4 progeny rows from the best plants will be planted in the 2011 nursery for an additional round of selection.

Table 3. Results of the pivot irrigated nematode variety test at the AG-CARES farm, Lamesa, TX 2010.

		Agronomic Properties								% Open				Bacterial
		% Turnout		% Lint		Boll	Seed	Lint	Seed per	Bolls	Storm		RK/	Blight
Designation	Yield	Lint	Seed	Picked	Pulled	Size	Index	Index	Boll	9/27/10	Resistance	Height	500cc soil	Rating
NexGen NG4111 RF	1357	28.0	44.4	37.5	30.3	5.4	10.4	6.4	31.6	71	4	29	4200	R
Deltapine DP 174 RF	1353	28.6	40.5	38.4	31.7	5.7	9.7	6.5	34.2	70	4	31	690	S
PhytoGen PHY 519WRF	1297	28.2	46.3	36.3	29.2	4.7	10.2	5.9	28.5	76	5	34	1410	S
PhytoGen PHY 367WRF	1287	26.6	45.1	36.5	28.8	4.8	9.3	5.6	31.5	73	4	31	488	S
Deltapine DP 1044 B2RF	1284	26.6	48.8	35.5	29.3	5.0	9.4	5.4	32.8	74	5	30	560	S
NexGen NG4012 B2RF	1282	26.6	47.2	34.6	28.0	5.3	9.7	5.4	34.3	73	4	28	2285	R
Deltapine DP 1133 B2RF	1224	29.2	40.8	39.2	31.0	5.1	9.2	6.2	32.8	78	4	30	1680	R
PhytoGen PHY 569WRF	1196	27.5	45.9	35.6	28.3	4.3	9.2	5.3	29.1	78	4	32	2100	S
Croplan Genetics CG 3035RF	1171	28.7	43.6	38.2	31.2	5.4	9.9	6.3	33.1	75	4	32	2120	S
All-Tex AT Epic RF	1171	28.8	44.5	38.5	30.4	5.4	9.9	6.4	32.2	76	4	32	715	S
NexGen NG3410 RF	1168	26.2	47.4	33.7	28.1	6.1	11.8	6.4	32.4	61	5	32	1410	R
Monsanto 09R348B2R2	1164	29.3	45.2	36.7	30.0	5.1	9.8	6.0	31.2	66	6	30	1590	R
FiberMax FM 9170B2F	1160	28.3	49.9	35.8	29.3	4.8	10.5	6.0	28.6	73	5	28	1440	R
Stoneville ST 5458B2RF	1157	26.7	44.5	36.8	30.6	5.5	10.1	6.1	33.2	66	5	32	535	S
Stoneville ST 4288B2F	1137	25.6	47.6	34.0	27.5	5.6	10.5	5.7	33.6	79	4	30	265	S
All-Tex AT 81144 B2RF	1126	25.4	46.1	35.3	28.4	5.5	11.4	6.4	30.6	70	5	29	1170	R
Bayer CropScience BCSX 1010B2F	1111	25.8	46.2	34.4	27.9	5.3	10.5	5.7	31.5	78	4	31	975	S
Americot AM 1532 B2RF	1105	26.0	47.3	33.4	26.9	5.1	11.3	5.9	28.8	78	5	31	1170	S
Deltapine DP 1032B2RF	1105	28.2	44.3	38.3	31.1	4.8	8.8	5.8	31.6	76	4	28	1580	P
Stoneville ST 5288B2F	1098	27.3	47.8	36.5	29.4	4.8	8.9	5.2	33.6	79	5	29	1930	R
Croplan Genetics CG 3520B2RF	1097	25.1	46.5	34.1	27.2	4.9	9.9	5.3	31.2	80	4	30	300	S
Croplan Genetics CG 4020B2RF	1091	25.1	45.4	34.5	27.5	5.0	9.6	5.3	32.2	79	4	32	1440	S
NexGen NG3348 B2RF	1089	24.7	48.4	34.2	27.8	5.3	11.1	6.0	29.9	66	6	31	960	P
FiberMax FM 1845LLB2	1069	25.7	46.9	33.1	26.5	5.9	11.6	5.9	32.6	73	5	28	1320	P
Deltapine DP 164 B2RF	1060	27.9	47.0	38.1	30.2	5.0	9.1	5.3	35.9	75	4	31	2460	S
Bayer CropScience BCSX 1030B2F	1052	27.1	44.2	36.9	29.9	4.9	9.5	5.7	31.5	80	4	28	2340	S
Monsanto 10R052B2R2	1036	28.8	41.3	39.3	31.1	5.0	9.1	6.1	32.1	58	4	29	385	S
FiberMax FM 1740B2RF	1034	26.1	45.1	36.0	29.5	4.9	10.3	6.0	29.1	81	5	30	4807	R
NexGen NG4010 B2RF	1033	25.6	47.0	35.5	28.1	4.7	9.4	5.3	30.9	76	5	29	2370	R
Croplan Genetics CG 3020 B2RF	997	22.5	47.1	32.3	25.8	5.2	10.7	5.3	32.0	79	4	29	930	R

Table 3. cont

Bayer CropScience BCSX 1040B2F	990	22.4	46.4	31.1	26.0	5.9	11.1	5.3	34.7	80	5	31	1140	R
NexGen NG2549 B2RF	987	25.2	47.5	33.9	27.8	4.5	9.7	5.3	29.2	73	7	31	1350	S
PhytoGen PHY 375WRF	986	27.8	41.9	37.3	29.4	4.5	9.1	5.7	29.4	90	3	26	2015	R
PhytoGen PHY 565WRF	976	24.2	42.8	35.6	28.5	4.8	9.4	5.5	30.9	79	4	31	2160	S
Croplan Genetics CG 3220B2RF	963	26.6	46.3	35.2	28.6	5.3	10.2	5.7	32.5	75	5	31	5220	S
Deltapine DP 1137 B2RF	950	27.4	41.3	38.4	30.7	5.1	8.6	5.7	34.3	78	4	30	715	S
Monsanto 09R637R2	947	28.1	43.5	38.5	29.8	4.8	9.5	6.1	30.3	80	4	28	820	S
Deltapine DP 0935 B2RF	928	27.8	45.2	36.7	29.5	5.5	10.1	6.1	32.6	69	5	29	1680	S
FiberMax FM 1773LLB2	900	24.2	46.9	33.9	27.2	5.6	11.4	6.0	31.9	73	5	29	1272	S
Croplan Genetics CGX 1001B2RF	878	22.6	46.6	31.9	25.4	4.6	9.8	4.8	30.7	76	4	30	530	S
Mean	1100	26.6	45.5	35.8	28.8	5.1	10.0	5.7	31.7	75	4	30		
c.v.%	13.6	5.4	3.9	2.7	3.4	4.8	3.6	4.5	5.5	7.0	17.5	6.9		
LSD 0.05	209	2.0	2.5	2.0	2.0	0.5	0.7	0.5	3.5	7	1	3	MSD 3533	

TITLE:

Effect of a Sorghum/Cotton/Cotton Rotation on Fall Population Density of Root-knot Nematodes, AG-CARES, Lamesa, TX, 2010.

AUTHORS:

T. A. Wheeler, V. Mendoza, G. Clark, Texas AgriLife Research, Lubbock

METHODS AND PROCEDURES:

Sorghum is a host of the southern root-knot nematode in Texas. In the eastern part of the U.S., sorghum is generally not a host of this nematode, but in Texas, root-knot nematode can reproduce to some extent on sorghum. The effect of sorghum during the current crop year, one year and two years after the sorghum was grown was compared to continuous cotton, with respect to population density of the nematode in the fall. The large plots were sampled in September or October of each year and assayed for root-knot nematode. Between 36 and 45 plots were sampled each year within a rotation system and the means are presented below.

RESULTS AND DISCUSSION:

Root-knot population was generally lower in the fall when sorghum was grown (CCS in Figure 1), compared to any of the rotation wedges with cotton. With just one year in cotton, following a sorghum crop (CSC) the population density was as high or higher than in continuous cotton (CCC). So, crop rotation benefits with respect to reducing root-knot nematode density are only present for the cotton crop following sorghum. By the following fall, the nematode density is back up to a continuous cotton crop.

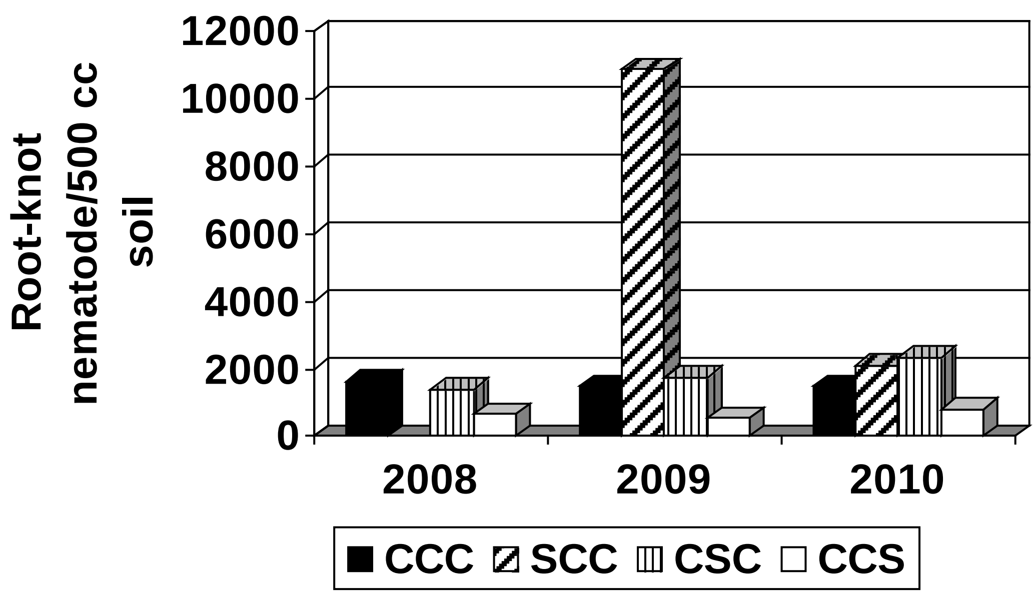


Figure 1. CCC is continuous cotton; SCC is sorghum in 2008, and cotton in 2009 and 2010; CSC is cotton in 2008 and 2010 and sorghum in 2009; CCS is cotton in 2008 and 2009 and sorghum in 2010.

TITLE:

Effect of Nematicides and Irrigation Rates on Cotton , AG-CARES, Lamesa, TX, 2010.

AUTHORS:

T. A. Wheeler, V. Mendoza, G. Clark, Texas AgriLife Research, Lubbock

METHODS AND PROCEEDURES:

Large plots were used to compare Temik 15G, Aeris, and their combination with an untreated check at three irrigation rates (Base (B), B+25%, B-25). The cultivar was Fibermax 9160B2F. The purpose was to determine if nematicides were affected by irrigation rate. There were 3 replications of irrigation rate (main plots) and 9 replications of chemical treatment (subplot) arranged in a split-plot design.

RESULTS AND DISCUSSION:

Plant stand was reduced by the combination of Temik 15G at 5 lbs/acre and Aeris compared with all other treatments. The plots without nematicide treatments also had lower stands than plots with Aeris alone or Temik alone (Table 1). In 2009, there was a similar reduction in the combination of Temik 15G (3.5 lbs/acre) + Aeris, compared to all other treatments (Table 1). Plant stands were not affected by irrigation rate (Table 2). Gall numbers were high in 2010 for all treatments, and were not affected by irrigation rate or by chemical treatment (Tables 1 and 2). Density of root-knot nematode in August was not affected by irrigation rate or by chemical treatment. Yield was affected by irrigation rate (Table 2), but was not affected significantly by chemical treatment. However, the interaction between irrigation rate and chemical treatment was significant at P=0.10, so this was further investigated.

Table 1. Affect of chemical treatments on plant parameters averaged over 2 years.

Temik 15G (lbs/acre)	Aeris	Plants/ Ft. row		Galls/ root	RK[a]	Lbs of Lint/acre
		2009	2010			
0	0	3.05 a	2.53 c	23.9	1936	1005
3.5	0	3.21 a	3.19 a	20.9	1371	1026
5.0	0	3.11 a	2.89 b	22.4	2284	1015
0	+	----	2.87 b	25.0	1776	1005
5.0	+	2.80 b	2.13 d	21.9	1587	1022

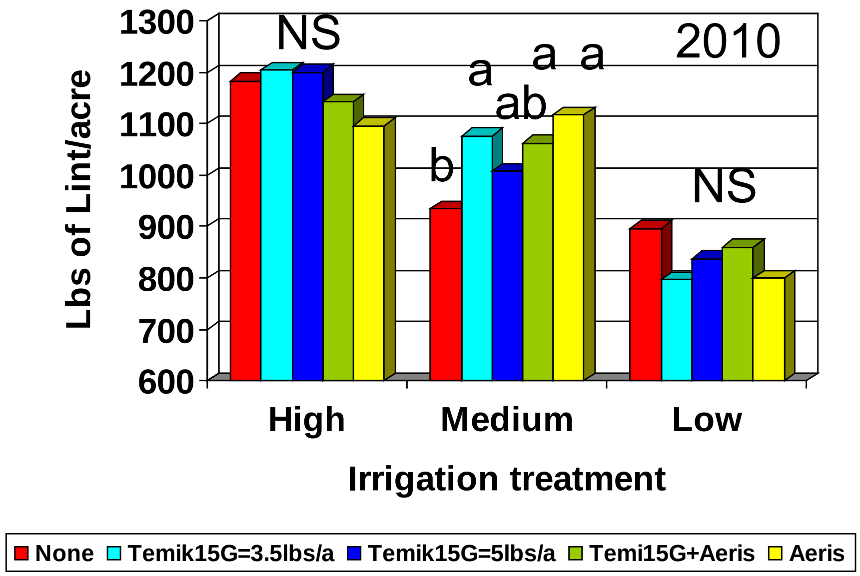
[a]RK is root-knot nematodes/500 cm^3 soil.

Table 2. Affect of irrigation rate on plant parameters averaged over 2 years.

Irrigation Rate	Plants/ Ft. row	Galls/ root	RK[a]	Lbs of Lint/acre
Base+25%	2.83	23.7	1,941	1,166 a
Base	2.91	20.0	2,289	1,040 a
Base-25%	2.85	24.6	1,141	838 b

[a]RK is root-knot nematodes/500 cm^3 soil.

The benefit of nematicides (Temik 15G and Aeris) on yield was apparent only at the Base (medium) irrigation rate, and was not seen in either 2009 or 2010 at the B+25% and B-25% irrigation rates (Fig. 1).



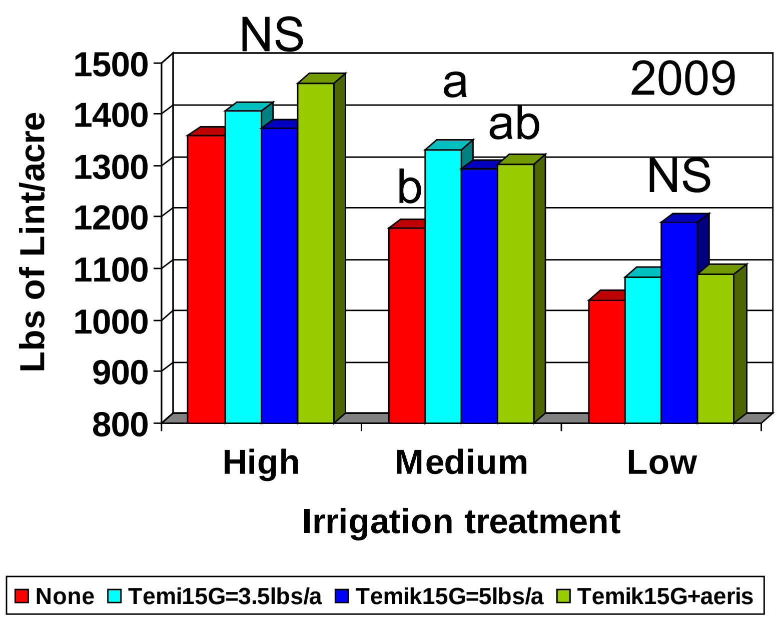


Figure 1. Affect of chemical treatments and Irrigation rate on yield in 2009 and 2010.

TITLE:

Comparison Between Nematicide Seed Treatments, AG-CARES, Lamesa, TX, 2010.

AUTHORS:

T. A. Wheeler, V. Mendoza, G. Clark, Texas AgriLife Research, Lubbock

METHODS AND PRECEDURES:

The original nematicide seed treatment was AVICTA complete Pack from Syngenta, which was followed by Aeris by Bayer Cropsciences. Both of these nematicides are chemically based. A new product was launched by Bayer Cropsciences in 2010 called Votivo, which is a bacterial-based product that can inhibit nematode infection of roots. This research was designed to look at the results in our semi-arid environment of Aeris alone, Votivo/Poncho (an insecticide) and the combination of Aeris + ½ rate of Votivo/Poncho. Two tests were conducted in 2010 at AGCARES with these products in small plots (35 ft. long), one at the Base (B) irrigation rate (with 7 replications) and one at the B-25% irrigation rate (with 5 replications). A combined analysis was conducted on these three treatments from the two tests.

RESULTS:

The three product combinations did not differ with respect to the number of galls/root or root-knot nematode density/500 cm^3 soil at midseason (Table 1). However, Aeris alone yielded more than Votivo/Poncho, or the combination of both Aeris and Votivo/Poncho (Table 1). Plant stands were higher with Aeris alone and Aeris + Votivo/Poncho than for Votivo/Poncho alone (Table 1). At this time we can recommend Aeris seed treatment for root-knot nematode control in low nematode pressure situations, but do not recommend the addition of Votivo/Poncho, or using Votivo/Poncho alone for nematode management in this region.

Table 1. Affect of nematicide seed treatments on plant stands, root galling, root-knot nematode density, and yield.

Treatment	Plants/ Ft. row	Galls/ root	Root-knot /500 cc soil	Lbs of Lint/acre
Aeris	2.75 a	9.7	2591	1199 a
Votivo+Poncho	2.30 b	13.0	1728	1098 b
Aeris+Votivo/Poncho	2.70 a	10.1	2908	1072 b

TITLE:

Evaluation of Foliar Applications of Headline and Quadris on Cotton Under Moderate Irrigation at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Jason Woodward, Randy Boman, and Ira Yates, Extension Plant Pathologist, Extension Agronomist and Technician

MATERIALS AND METHODS:

Plot size:	4-rows by 50 feet with four (harvested 2 middle rows)
Planting dates:	5-May
Variety:	Deltapine 9035B2RF
Harvest date:	5-Nov

RESULTS AND DISCUSSION:

No foliar diseases were observed in this trial. Foliar applications of fungicides had no effect on seed cotton, gin turnout, or lint yields (Table 1). Seed cotton weights ranged from 3060 to 3285 lb/A with an average turnout of 27.1%. Lint yields were variable among replications and ranged from 727 to 830 lb/A. Lint yields were similar for all treatments and ranged from 820.6 to 902.4 lb/A. In addition, the application of fungicides had no effect of fiber quality (Table 2). Micronaire ranged from 4.10 to 4.35 units. No differences between treatments were found for, length, uniformity, elongation, Rd, +b or leaf grades with average values of 1.12, 82.2, 6.98, 80.7, 8.17 and 3.06, respectively. While differences (P=0.0436) were observed for strength these differences were minor and did not affect loan values (Table 1). Strength was greatest for the plots that received 6.0 fb 6.0 fl oz/A of Quadris and lowest for the plots that received 6.0 fb 12.0 fl oz/A of Quadris (Table 2). Strengths for all other treatments were intermediate. These results indicate that there was no apparent benefit to applying Headline or Quadris to cotton under moderate irrigation levels. This is consistent with other studies where fungicides were applied (under varying levels of irrigation and in non-irrigated trials).

Table 1. Performance of the fungicides Headline and Quadris applied to cotton under moderate irrigation at AG-CARES, 2010

Treatment[a]	Seed cotton (lb/A)	Turnout (% lint)	Lint yield (lb/A)	Loan value ($/A)
1. Non-treated control (I)	3185	26.7	851.1	0.5500
2. Quadris 12 fl oz/A FB	3190	26.9	858.3	0.5613
3. Quadris 6 fl oz/A FB Quadris 6 fl oz/A + 14	3285	27.4	902.4	0.5541
4. Quadris 6 fl oz/A FB Quadris 12 fl oz/A + 14	3247	27.1	878.5	0.5458
5. Headline 12 fl oz/A FB	3099	26.9	844.4	0.5675
6. Headline 6 fl oz/A FB Headline 6 fl oz/A + 14	3060	27.2	841.4	0.5457
7. Headline 6 fl oz/A FB Headline 12 fl oz/A + 14	3076	26.7	820.6	0.5538
8. Non-treated control (II)	3145	28.0	880.2	0.5658
(LSD ≤ 0.05; n=4)[b]	NS	NS	NS	NS

[a] FB refers to first bloom and + 14 indicates a sequential application was made 14 days later. [b] NS indicates means within a column are not significantly different according to Fisher's protected LSD. There were a total of four replications in this trial.

Table 2. Fiber properties cotton treated with the Headline and Quadris under moderate irrigation at AG-CARES, 2010

Treatment[a]	**Micronaire (units)**	**Length (inches)**	**Uniformity (%)**	**Strength (g/tex)**	**Elongation (%)**	**Rd (%)**	**+b (%)**	**Leaf grade**
1. Non-treated control (I)	4.28	1.11	81.9	30.1 abc	7.00	81.2	8.33	3.75
2. Quadris 12 fl oz/A FB	4.25	1.13	81.7	30.7 ab	6.85	80.6	8.15	2.75
3. Quadris 6 fl oz/A FB Quadris 6 fl oz/A + 14	4.25	1.12	83.1	31.1 a	7.08	80.5	8.10	3.25
4. Quadris 6 fl oz/A FB Quadris 12 fl oz/A + 14	4.23	1.10	81.4	29.6 c	7.10	80.4	8.15	3.00
5. Headline 12 fl oz/A FB	4.35	1.12	82.7	30.9 abc	7.05	80.9	8.33	2.00
6. Headline 6 fl oz/A FB Headline 6 fl oz/A + 14	4.25	1.11	82.2	30.0 bc	6.95	80.2	8.10	3.50
7. Headline 6 fl oz/A FB Headline 12 fl oz/A + 14	4.18	1.12	82.2	30.9 ab	6.80	80.4	8.00	3.25
8. Non-treated control (II)	4.10	1.14	82.2	30.9 ab	6.98	81.0	8.18	3.00
(LSD ≤ 0.05; n=4)	NS	NS	NS	0.998	NS	NS	NS	NS

[a] FB refers to first bloom and + 14 indicates a sequential application was made 14 days later. [b] NS indicates means within a column are not significantly different according to Fisher's protected LSD. There were a total of four replications in this trial.

TITLE:

Effect of Cover Crop on Arthropod Population Dynamics in Subsurface Drip Irrigated Cotton at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Megha Parajulee, Bo Kesey, Owen McSpadden, Stanley Carroll, Ram Shrestha, and Wayne Keeling, Professor, Research Assistant, Technician II, Associate Research Scientist, Research Associate, and Professor, Texas AgriLife Research.

METHODS AND PROCEDURES:

Experimental design:	Randomized complete block with 6 replications
Plot size:	53.3 ft wide (16, 40-inch rows) and 823 ft long
Experimental area:	6 acre
Soil type:	Amarillo sandy loam
Variety:	Americot 1532 B2RF
Soil sampling:	1/6 acre grid
Insect sampling:	Numbers per 100 row-ft sample by KIS sampler
Irrigation:	Subsurface drip
N fertilizer rate:	100 lbs/ac
Planting date:	May 4, 2010
Harvest date:	October 18, 2010

A small grain cover crop was planted in the experimental field immediately after cotton harvest in 2009 in half of each experimental plot area (8 rows X 823 ft), whereas the other half was exposed to conventional tillage. There were six blocks each for conservation and conventional tillage treatments that served as replications. Arthropods were sampled weekly from plant emergence until crop cut-out. When plants were at about 5-6 leaf stage (June 28), 10 randomly selected plants per plot were measured for plant height, root length, and total leaf area per plant. Plant monitoring was conducted using cotton management program called COTMAN. COTMAN plant mapping was conducted weekly from June 23 to August 12 (8 sample weeks).

RESULTS AND DISCUSSION:

Pest insect densities remained below economic threshold in both no-till and conventional tillage plots throughout the growing season. Overall, abundance of predatory arthropods was significantly lower in no-till plots (25 predators per sample) than in conventional tillage plots (31 per sample). However, predator-prey ratio in no-till plot was much higher (10.4) than in conventional tillage plots (7.8), indicating a much higher performance of natural enemies in the no-till system. Nevertheless, both no-till and conventional tillage plots had pest abundances reduced to below economic threshold by high natural enemy numbers (2.4 and 4.0 pest insects, respectively). Plant growth performance, as indicated by increased plant height and root length, was significantly better in conventional tillage plots compared to that in no-till plots. However, total leaf area per plant was similar between no-till and conventional tillage plots at peak squaring stage of cotton.

Plant monitoring at weekly intervals showed that crop was delayed significantly due to cool weather and excessive wind in May-June. However, when squaring began, crop followed the target crop development curve (Fig. 1). While overall crop growth and fruiting profile was similar between the two cropping systems, no-till plots consistently lagged behind conventional tillage plots and was about 1 week delayed in crop cut-out (Fig. 1). Also, the chlorophyll content of the plants did not significantly vary between the two cropping systems (Fig. 2), likely due to sufficient irrigation production regime and the above-average rainfall during the growing season. As a result, the lint yield did not statistically vary between the two treatments (1117 and 1052 lb/A in conventional and no-till treatments, respectively).

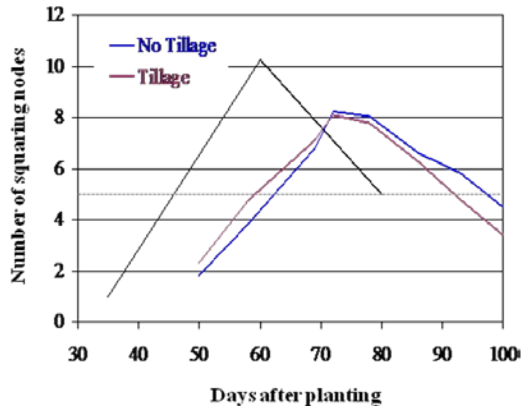


Figure 1. Average number of squaring nodes (fruiting profile) in no-tillage vs. conventional tillage plots as indicated by SQUAREMAN component of the COTMAN plant monitoring program, Lamesa, TX, 2010.

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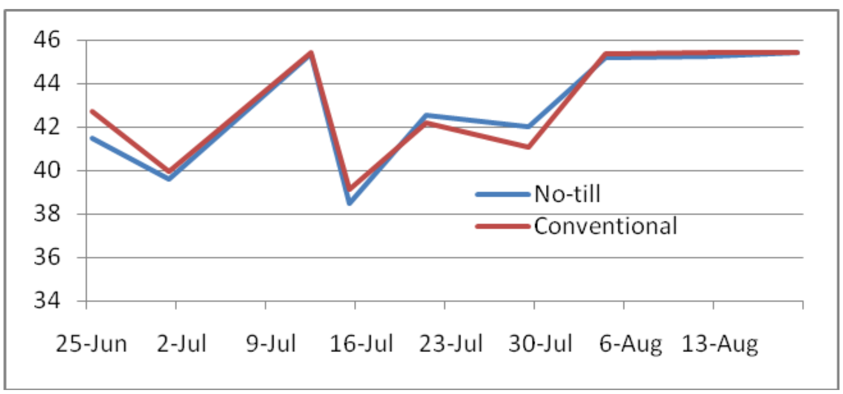

Figure 2. Temporal patterns of leaf chlorophyll content (per 6 mm^2) measured on 5^{th} mainstem leaf in no-tillage vs. conventional tillage plots, Lamesa, TX, 2010.

TITLE:

Cotton Fruiting/Yield Compensation after *Lygus* Induced Square Loss as Influenced by Variety x Water Treatments, Lamesa, TX, 2010.

AUTHORS:

Megha Parajulee, Owen McSpadden, Diwash Neupane, Ram Shrestha, Stanley Carroll, Wayne Keeling; Professor, Technician II, Research Assistant, Research Associate, Associate Research Scientist, Professor, Texas AgriLife Research

MATERIALS AND METHODS:

Plot Size:	2 rows by 50 feet, 3 replications
Planting Date:	May 6
Varieties:	DP 0935 B2RF
	AMC 1532 B2RF
Fertilizer:	100-34-0
Insect treatment:	4 and 6 *Lygus* bugs (late instars) released per plant (4PP and 6PP) and Control (three treatments)
Insect release dates:	June 24, July 1 and July 13
Plant mapping dates:	June 24, July 1, 13, 27, August 5, 12
Harvest Date:	October 18, 2010 (Hand-harvested)

Two cotton varieties (DP 0935 B2RF and AMC 1532 B2RF) were evaluated under low and high irrigation levels based on maximum pumping capacities of 0.12 and 0.24” per day. *Lygus* bugs were released in each treatment combination (3 insect release treatments x 2 water levels x 2 cultivars x 3 replications = 36 plots) for three consecutive weeks to mimic a natural early season chronic infestation. The four and six bugs per plant treatments were designed to exert significant insect pressure on fruiting cotton plants. Plant mapping was conducted three additional weeks beyond the last bug release date to monitor the fruit set and retention profile as influenced by the bug augmentation treatment.

RESULTS AND DISCUSSION:

Lygus augmentation treatments resulted in significantly greater percentages of fruit shed than control plots (Tables 1-2). However, the level of irrigation water did not significantly influence the level of damage inflicted by *Lygus* injury. Higher amount of irrigation water generally favors greater damage by *Lygus*, but the above-average rainfall in 2010 growing season might have masked that effect. Nevertheless, cultivars varied in their response to *Lygus* infestation and damage, with significantly greater level of damage in DP 0935 B2RF than AMC 1532 B2RF (Table 2). Overall, lint yield was significantly higher in DP 0935 B2RF (1511 lb/A) than in AMC 1532 B2RF (1258 lb/A). However, both cultivars were able to fully compensate the early fruit loss caused by *Lygus* injury (Table 3). It was not surprising that AMC 1532 B2RF compensated the fruit loss fully, which was only up to 25%, as was observed in our previous studies in which cotton would generally compensate 20-25% *Lygus*-induced fruit loss. However, it was a bit unexpected that DP 0935 B2RF fully compensated the fruit loss of 40-45%; perhaps the high water level contributed to this higher level of compensation (Table 3).

Table 1. Percentage square abscission in cotton induced by varying levels of three consecutive releases of *Lygus* nymphs in water x cultivar treatments, Lamesa, Texas, 2010.

Insect Density	Cultivar			
	AMC 1532 B2RF		DP 0935 B2RF	
	Low Water	High Water	Low Water	High Water
Control	9	8	10	11
Low	15	14	28	21
High	20	25	36	44

Water level was not a significant factor, as expected due to greater than average rainfall in 2010.

Table 2. Percentage square abscission in cotton induced by varying levels of three consecutive releases of *Lygus* nymphs compared between two cultivars, Lamesa, Texas, 2010.

Insect Density	Cultivar	
	AMC 1532 B2RF	DP 0935 B2RF
Control	8 b, B	10 c, A
Low	14 b, B	24 b, A
High	22 a, B	40 a, A

Percentage abscission varied significantly with both cultivar and insect density treatments. Insect density treatments within a cultivar is compared by lowercase letters and cultivars within an insect density treatment are compared by uppercase letter.

Table 3. Lint yield (lb/A) in cotton after *Lygus*-induced pre-flower square loss in water x cultivar treatments, Lamesa, Texas, 2010.

Insect Density	Cultivar			
	AMC 1532 B2RF		DP 0935 B2RF	
	Low Water	High Water	Low Water	High Water
Control	1031	1529	1402	1562
Low	1184	1446	1345	1689
High	981	1375	1247	1820
Average	1258		1511	

Analysis showed that water level and cultivar were both significant, but insect-induced losses of up to 44% (Table 1) were all compensated.

TITLE:

The Causes and Consequences of Secondary Pest Outbreaks: Direct Effects of Pesticides on Plant Defense Against Herbivores, AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Adrianna Szczepaniec, Micky Eubanks and David Kerns, Postdoctoral Research Associate, Associate Professor and Extension Entomologist-Cotton

METHODS AND PROCEDURES:

Field plots

Field plots were established at the Texas A&M Ag Cares Research Farm in Lamesa, TX, on May 19th, 2010. Each cotton plot was 6 rows wide (6 m) and 9 m long, separated by 1.5 m alleys. The experiments was designed as a 2x2x2 factorial design with 2 levels each of thiamethoxam seed treatment (+/-) and thiamethoxam foliar treatment (+/-) and two levels of watering regime (high/low) delivered by pivoted irrigation system. Each treatment was replicated 4 times (N=24). Cruiser®-treated cotton seeds were obtained from a commercial supplier. Foliar applications of thiamethoxam (Centric®) were applied on July 24th and August 6th at the label dose of 2.5 oz/ac. In addition to the thiamethoxam treatments, (Orthene at 0.75 lbs/ac for thrips) and (Karate at 5 fl-oz/ac + Belt at 3 fl-oz/ac for bollworms) insecticides were applied on July 19th and August 2nd, respectively.

Abundance of spider mites

Each plot was artificially infested with spider mites from naturally occurring populations and laboratory colonies. To this end, a leaf bearing high populations of the mites was attached using insect pins to 10 cotton plants within each plot. These controlled infestations were performed on July 23rd, July 29th and August 5th. Spider mite abundance was evaluated on August 11th and September 7th by collecting leaves from five plants within each plot, transporting them to the laboratory and using a mite brush to remove mites from leaves and count mobile stages and mite eggs. In addition to the destructive sampling at the end of the season, all arthropods present on 10 plants within each plot were identified and tallied every two weeks using a beat cloth method. Beat cloth sampling was taken from early July until mid-September. Differences in spider mite abundance between treatments were analyzed using analysis of variance. Where non-normal distribution and heteroschedastic variances could not be corrected by transforming the data, a non-parametric test was used.

Protein assays

Cotton leaves for protein analyses were sampled on June 18th. The youngest fully expanded leaf from 10 plants randomly assigned to be assayed for protein activity from each plot was excised and flash frozen in liquid nitrogen and stored at -80˚C in the laboratory. Analysis of defense proteins: peroxidase, trypsin inhibitor and chitinase followed the methods described in Cipollini et al. (2004). Briefly, prior to extraction, leaves were weighed and leaf material was homogenized to extract soluble proteins. After extraction, the protein solution was centrifuged and the cleared supernatant was used for subsequent analyses. Peroxidase and chitinase activity was measured using assays designed for a microplate reader. Trypsin inhibitor activity was measured by examining the diffusion of protein extracts through a trypsin-containing agar. Differences between protein concentrations were analyzed using non-parametric test owing to non-normal distribution and heteroschedastic variances that could not be corrected by transforming the data.

RESULTS AND DISCUSSION:

Abundance of spider mites

Owing to unusually high precipitation for the high plain region of TX, the water regime could not be sufficiently implemented. Neither water factor nor water by treatment interaction were significant. Replicates were lumped together across the water treatment, thus increasing replication of each thiamethoxam treatment and untreated plots to eight. In August abundance of spider mites was not significantly different between treatments (X^2=3.742, *df*=3, *P*=0.288) (Fig. 1A). Spider mites were scarce and did not reach action threshold levels. Similar results were observed when sampling was repeated in September ($F_{3,28}$=0.38, *P*=0.767) (Fig. 1B). While several taxa of arthropods were relatively numerous such as aphids and their predator coccinellid beetle, we did not find any differences in abundance of spider mite predators between thiamethoxam-treated and untreated plots.

Protein assays

Differences in defense proteins between cotton plants treated with thiamethoxam and untreated plants were marginally significant (peroxidase: X^2=2.181, *df*=1, *P*=0.124; chitinase: X^2=2.406, *df*=1, *P*=0.121), with the exception of trypsin inhibitor, which differed significantly between treatments (X^2=3.688, *df*=1, *P*=0.055). Cotton plants sawn from seeds treated with the neonicotinoid insecticide had decreased activity of the three defensive proteins in June (Fig. 2).

Despite initial seed treatments and several foliar applications of thiamethoxam, we did not find spider mites to increase in numbers in plots treated with the neonicotinoid insecticide. There were several factors that may have affected the outcome of this trial. First, unusually high precipitation amounts early in the growth of the plants precluded establishment of the water-stress treatment. Plants in all plots received high irrigation amounts, which resulted in stimulated growth, affected vigor of the plants and may have had an impact on defenses of the plants against spider mites. Secondly, high abundance of thrips early in the season may have eliminated spider mites that were introduced to the young cotton plants. While pesticide applications were administered to mitigate thrips infestations and we repeated introductions of spider mites, the timing of the subsequent introductions as well as the numbers of mites introduced to the plots may have not been sufficient to establish a population of the mites. Lastly, environmental factors that we were not able to predict in the field experiment have likely interacted with the effect of the insecticide on spider mite populations. We have shown previously in greenhouse experiments that seed treatments of cotton with thiamethoxam result in elevated populations of spider mite. This result has proven difficult in repeat in field conditions, although spider mite outbreaks have been reported following thiamethoxam use in other locations in Texas in unrelated studies.

Although we did not find spider mite outbreaks following use of thiamethoxam in cotton fields, we report here a trend for lower concentration of several proteins involved in plant defense in cotton exposed to seed treatments of thiamethoxam. Proteins that we assayed, trypsin inhibitor, peroxidase and chitinase, are involved in reducing digestibility of plant proteins and protecting plant tissue from oxidative damage and pathogen exposure during herbivore feeding. While only marginally significant, all of these defensive compounds were negatively affected in young cotton plants grown from thiamethoxam-treated seeds. This is an important finding, because it implies that thiamethoxam has an effect on plant physiology that may have far-reaching consequences for plant defense against herbivores.

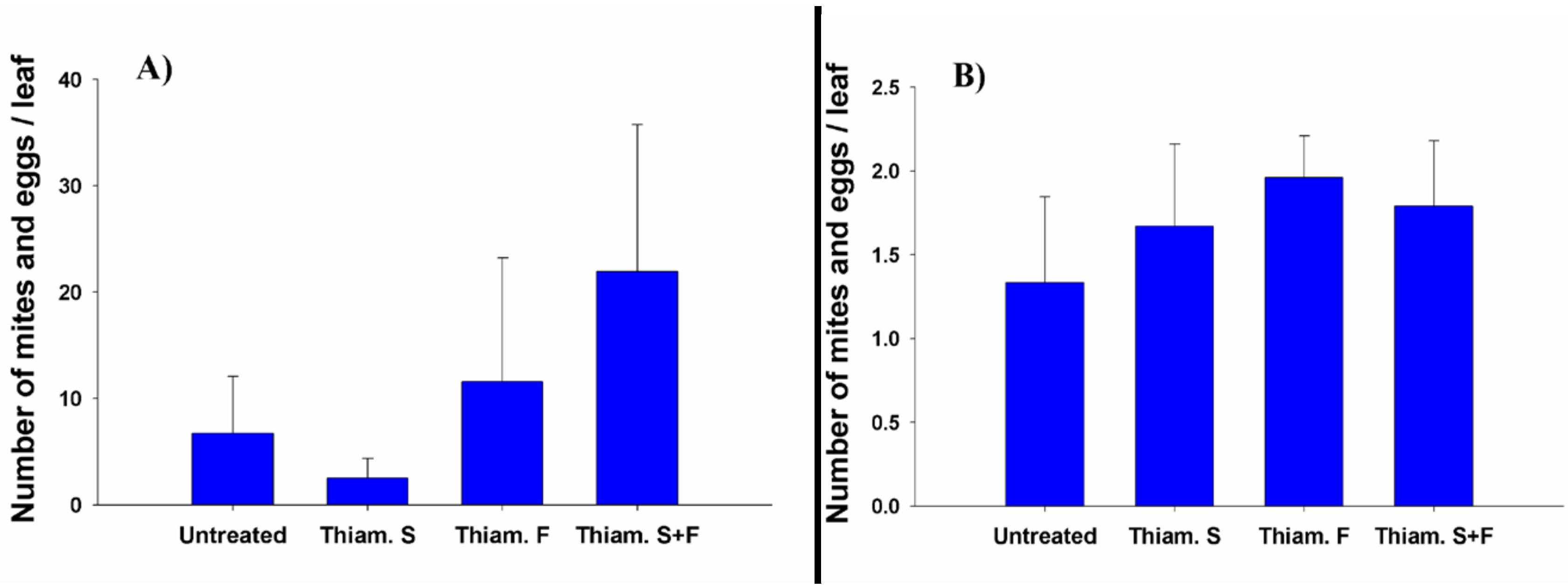

Figure 1. Abundance of spider mites in August (A) and September (B) in untreated plots and following seed treatments (Thiam. S), foliar treatments (Thiam. F) and both seed and foliar applications of thiamethoxam (Thiam. S+F). Abundances of mites did not differ significantly between plots.

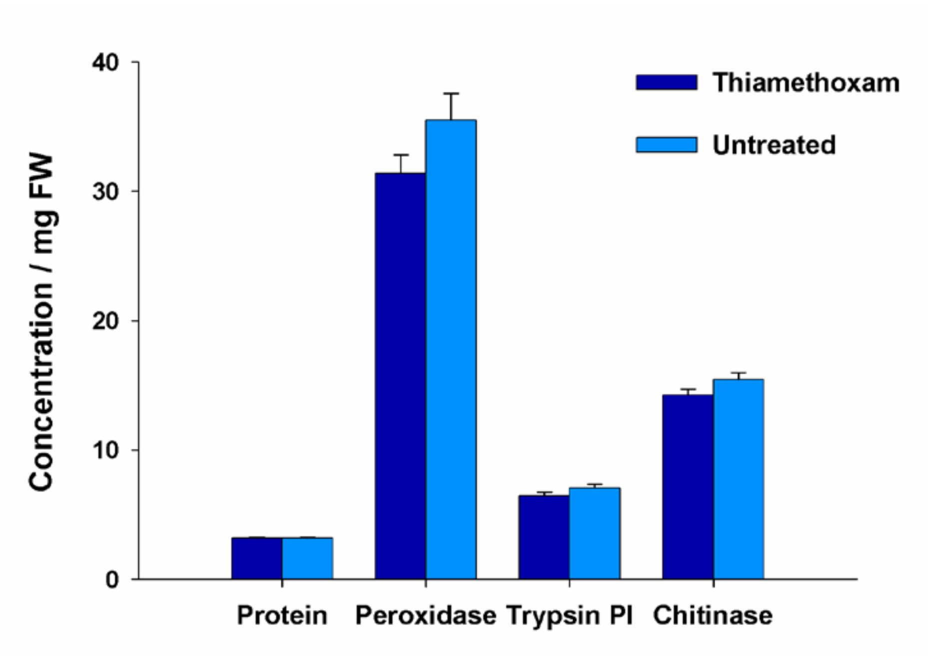

Figure 2. Concentrations of total soluble proteins and selected defensive proteins in young cotton plants grown from thiamethoxam-treated seeds. Levels of peroxidase, trypsin inhibitor and chitinase tended to be lower in seed-treated cotton. Differences in concentrations of trypsin inhibitor were marginally significant between treatments.

TITLE:

Evaluation of Preventive Seed Treatments and Temik for Thrips, Root-knot Nematodes and Disease Control, AG-CARES, Lamesa, TX, 2010.

AUTHORS:

David Kerns, Jason Woodward, Tommy Doederlein and Bo Kesey
Extension Entomologist-Cotton, Extension Plant Pathologist, EA-IPM Dawson/Lynn Counties, Extension Program Specialist-Cotton

METHODS AND PROCEDURES:

This test was conducted at the Texas AgriLife AGCARES facility in Lamesa, TX. The field was planted on 5 May on 40-inch rows, and irrigated using pivot sprinkler irrigation. Originally, the test was setup as a factorial design using two varieties, DP 0935 B2RF and DP 1034 B2RF. However, the DP 1034 B2RF suffered very poor emergence. Although we are not certain, we think that we may have acquired a poor seed lot for this variety. Because of the poor emergence, we eliminated the DP 1034 B2RF from the analysis. Thus, the test was analyzed as a RCB design with four replications. Plots were 4-rows wide × 30 ft in length. All the treatments evaluated were either in-furrow or seed treatments (Table 1).

Insect sampling
Adult and immature thrips were sampled by visually inspecting 10 whole plants per plot. Samples were taken on 25 May, and 1 and 8 Jun. Vegetable leafminers were sampled on 8 June by counting the number of mines present on 10 plants. Thrips feeding damage was rated on a 0-9 modified Guthrie scale on 25 May and 8 June.

Nematode sampling
Nematodes were sampled by digging up 5 plants per plot and transporting them to the laboratory where the number of galls were counted. A single sample was taken on 16 June.

Disease sampling
Incidence of seedling disease was estimated based on plant stand. The number of plants were counted in the entire plot and converted to plants per acre. Stand counts occurred on 27 May.

Plant characteristics
Vigor was estimated on 25 May and 8 June using a 1-9 scale, where 1-3 is above average vigor, 4-6 is average vigor and 7-9 is below average vigor.

On 16 June, plant height was measured from 5 plants per plot by measuring the distance from the cotyledons to the plant terminal. Leaf area was also estimated at this time using the same plants and a LICOR leaf area indexer.

The plots were harvested on 10 October using a HB stripper, harvesting 1/1000 acre from the middle two rows of each plot. Yields were recorded.

Data were analyzed using ANOVA and the means were separated with an F protected LSD ($P \geq 0.10$).

RESULTS AND DISCUSSION:

At 20 days after planting (DAP), or 11 days after emergence (DAE), almost no immature thrips were detected, and all of the treatments that contained insecticides had fewer adults than the untreated (treatment 6) (Table 1). Among the insecticides, Cruiser had the fewest total thrips but differed only from Gaucho Grande. At this time, damage was greater in the untreated than in any other treatment. Gaucho Grande alone, although damage was low, suffered more damage than the other insecticide treatments except Gaucho Grande + Poncho.

Thrips numbers were higher on 1 June (27 DAP, 18 DAE) (Table 2). At this time all of the treatments containing an insecticide had fewer immature, adult and total thrips than the untreated. Thus, it appears that all of the insecticide treatments offered at least 18 days post emergence control of thrips. The addition of Poncho to Gaucho Grande did not appear to enhance thrips control over Gaucho Grande alone.

On 8 June (34 DAP, 25 DAE) the cotton had reached the 4 true leaf stage and the thrips numbers had greatly diminished (Table 4). Because of the low number of thrips, differences among treatments could not be determined. Damage due to thrips had increased significantly, averaging 8 in the untreated. All of the insecticide treatments had less damage than the untreated but did not differ from each other. The fact that damage had increased in the insecticide treated plots suggests that all treatments were losing effectiveness by 25 DAE.

Leafminers were common in this test by 8 June (Table 4). Treatment 6 (the insecticide-free treatment) and Gaucho Grande alone had the highest number of mines, both averaging 2.53 mines per plant. Treatments with the fewest mines included Temik, Gaucho Grande + Poncho, Avicta CC and Crusier.

There were no differences among treatments in the number of root-knot nematode galls or plant height (Table 5). Differences were detected for leaf area which may have been due to thrips, leafminers, disease or nematodes. However, because nematodes and diseases do not appear to impact this study, most of this damage was likely due to thrips and leafminers. The Temik treatment had the greatest leaf area; significantly larger than any other treatment (Table 5). Treatment 6 (no insecticide) had the smallest leaf area but did not differ from Aeris. The remaining treatments were moderate in leaf area.

We detected no difference in yield among treatments (Table 5). However, this test received heavy hail and wind damage in late-June that destroyed a lot of the plant terminals. This made harvest difficult and may have masked yield differences due to pests.

Table 1.

	Treatment	Pesticide classification	Rate
1	Diamir-C		0.02 mg-ai/seed
	Allegiance-FL		0.014 mg-ai/seed
	Trilex FL	Fungicide	0.01 mg-ai/seed
	Spera		0.025 mg-ai/seed
	MON 57401		0.001 mg-ai/seed
	Gaucho Grande	Insecticide	0.375 mg-ai/seed
2	Diamir-C		0.02 mg-ai/seed
	Allegiance-FL		0.014 mg-ai/seed
	Trilex FL	Fungicide	0.01 mg-ai/seed
	Spera		0.025 mg-ai/seed
	MON 57401		0.001 mg-ai/seed
	Gaucho Grande	Insecticide	0.375 mg-ai/seed
	Temik	Insecticide/Nematicide	5 lbs/ac
3	Diamir-C		0.02 mg-ai/seed
	Allegiance-FL		0.014 mg-ai/seed
	Trilex FL	Fungicide	0.01 mg-ai/seed
	Spera		0.025 mg-ai/seed
	MON 57401		0.001 mg-ai/seed
	Gaucho Grande	Insecticide	0.375 mg-ai/seed
	Poncho/Votivo	Insecticide/Nematicide	12.7 fl-oz/cwt
4	Diamir-C		0.02 mg-ai/seed
	Allegiance-FL		0.014 mg-ai/seed
	Trilex FL	Fungicide	0.01 mg-ai/seed
	Spera		0.025 mg-ai/seed
	MON 57401		0.001 mg-ai/seed
	Aeris[a]	Insecticide/Nematicide	0.75 mg-ai/seed
5	Avicta Complete Cotton[a]	Fungicide/Insecticide/Nematicide	mixture
6	Diamir-C		0.02 mg-ai/seed
	Allegiance-FL	Fungicide	0.014 mg-ai/seed
	Trilex FL		0.01 mg-ai/seed
	Spera		0.025 mg-ai/seed
7	Cruiser ST	Insecticide	0.34 mg-ai/seed
	Dynasty CST	Fungicide	mixture

[a]Avicta Complete Cotton (seed treatment) is a mixture of Avicta 500FS at 0.15 g(AI)/seed, Cruiser 5FS at 0.34 mg(AI)/seed, and Dynasty CST 125FS at 0.03 mg(AI)/seed; Aeris (seed treatment) is a mixture of Gaucho Grande 5FS at 0.375 mg(AI)/seed and thiodicarb at 0.375 mg(AI)/seed; Temik was applied in-furrow

Table 2. Number of thrips, thrips damage, plant vigor and stand on 25 May (20 DAP, 11 DAE); cotyledon-1 true leaf stage.

	Treatment[a]	Thrips per plant: immatures	adults	total	Damage (0-9)	Vigor (1-9)	Plants/ac[b] × 1000
1	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Gaucho Grande	0.00b	0.475bc	0.48bc	0.50b	8.75a	32.66a
2	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Gaucho Grande Temik	0.00b	0.13bc	0.13cd	0.00c	9.00a	38.69a
3	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Gaucho Grande Poncho/Votivo	0.00b	0.55b	0.55b	0.25bc	8.75a	31.07a
4	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Aeris	0.10b	0.08c	0.13cd	0.00c	9.00a	34.72a
5	Avicta Complete Cotton	0.00b	0.08c	0.08cd	0.00c	9.00a	35.04a
6	Diamir-C Allegiance-FL Trilex FL Spera	0.90a	2.10a	2.98a	5.50a	7.00a	33.59a
7	Cruiser ST Dynasty CST	0.00b	0.05c	0.05d	0.00c	9.00a	32.94a

Values in a column followed by the same letter are not different based on ANOVA analysis with an F protected LSD ($P \geq 0.10$).
[a]See Table 1 for treatment details.
[b]Sampled on 27 May.

Table 3. Number of thrips on 1 June (27 DAP, 18 DAE); 2 true leaf stage.

		Thrips per plant		
	Treatment[a]	immatures	adults	total
1	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Gaucho Grande	0.23b	0.45b	0.68b
2	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Gaucho Grande Temik	0.25b	0.23b	0.48b
3	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Gaucho Grande Poncho/Votivo	0.38b	0.40b	1.78b
4	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Aeris	0.00b	0.25b	0.25b
5	Avicta Complete Cotton	0.23b	0.58b	0.80b
6	Diamir-C Allegiance-FL Trilex FL Spera	2.68a	1.90a	4.78a
7	Cruiser ST Dynasty CST	0.18b	0.13b	0.30b

Values in a column followed by the same letter are not different based on ANOVA analysis with an F protected LSD ($P \geq 0.10$).
[a]See Table 1 for treatment details.

Table 4. Number of thrips, thrips damage, plant vigor and leafminer mines on 8 June (34 DAP, 25 DAE); 4 true leaf stage.

		Thrips per plant			Damage	Vigor	Leafminer
	Treatment[a]	immatures	adults	total	(0-9)	(1-9)	mines/plant
1	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Gaucho Grande	0.00a	0.88a	0.88a	3.25b	6.75a	2.53a
2	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Gaucho Grande Temik	0.08a	0.65a	0.73a	2.50b	7.00a	0.80c
3	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Gaucho Grande Poncho/Votivo	0.03a	0.48a	0.55a	3.50b	5.50b	1.30bc
4	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Aeris	0.00a	0.30a	0.33a	3.50b	6.50a	1.75ab
5	Avicta Complete Cotton	0.03a	0.63a	0.63a	3.50b	6.75a	1.45bc
6	Diamir-C Allegiance-FL Trilex FL Spera	0.00a	0.40a	0.43a	8.00a	4.50b	2.53a
7	Cruiser ST Dynasty CST	0.08a	0.45a	0.45a	3.25b	6.50a	1.18bc

Values in a column followed by the same letter are not different based on ANOVA with an F protected LSD ($P \geq 0.10$).
[a]See Table 1 for treatment details.

Table 5. Number of root-knot nematode galls, plant height and leaf area on 16 June (42 DAP, 33 DAE); 6 true leaf stage; Yield (20 October).

	Treatment[a]	Root-knot nematode galls/plant	Plant height cm	Leaf area cm^2	Yield lint-lbs/ac
1	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Gaucho Grande	28.30a	11.10a	78.58bc	958.53a
2	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Gaucho Grande Temik	16.40a	12.33a	115.90a	915.05a
3	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Gaucho Grande Poncho/Votivo	30.35a	10.89a	85.66bc	973.03a
4	Diamir-C Allegiance-FL Trilex FL Spera MON 57401 Aeris	19.80a	11.33a	63.90cd	1096.90a
5	Avicta Complete Cotton	20.70a	11.18a	91.24b	1002.63a
6	Diamir-C Allegiance-FL Trilex FL Spera	11.00a	8.85a	43.48d	967.40a
7	Cruiser ST Dynasty CST	24.40a	11.45a	73.53bc	1052.50a

Values in a column followed by the same letter are not different based on ANOVA with an F protected LSD ($P \geq 0.10$).
[a]See Table 1 for treatment details.

TITLE:

Irrigated Grain Sorghum Seeding Rate Test, AG-CARES, Lamesa, TX 2010 with 3-Year Results

AUTHORS:

Calvin Trostle, Texas AgriLife Extension Service, Lubbock, ctrostle@ag.tamu.edu, 806.746.6101; Danny Carmichael, Texas AgriLife Research, Lubbock; Sean Wallace, Extension assistant, Lubbock.

METHODS & PROCEDURES:

Planting:	April 30, 2010 on 40” rows
Previous Crop:	Cotton
Seeding Rate:	See test notes below—range of 26,000 to 105,000 seeds per acre; plant population was recorded
Plot Set-up:	6 replicated plots per each of two hybrids, 4 rows X ~50’
Harvest Area:	2 rows X ~45’
Fertilizer:	~80 lbs./N acre, ~20 lbs./A P2O5
Herbicide:	Propazine
Insecticide:	None
Rainfall:	See summary in AG-CARES report
Irrigation Level:	~9”
Date Harvested:	October 7-10, 2010

OBJECTIVE:

Test seeding density effects on grain yield for medium-long Pioneer 84G62 and medium ChannelBio 7C22 grain sorghum hybrids. Report three-year trial results for 84G62.

HOW THIS TRIAL WAS CONDUCTED:

Targeted seed counts ranged from 2.0 to 8.0 seeds per foot of row (26,000 to 105,000 seeds per acre) to create a range of seeding rates for irrigated grain sorghum. Two grain sorghum hybrids were planted using a John Deere Maxi-Emerge air vacuum planter in which the in-cab electronic seeding rate monitor adjusted the sensor on the planter to select the target seeding rate for each hybrid. These hybrids included Pioneer 84G62, a medium-long maturity hybrid that has a long track record of higher yields that most other hybrids under irrigation; and ChannelBio 7C22 (formerly NC+), which has been a frequent top-performing medium maturity hybrid under dryland in West Texas. The later hybrid replaces Dekalb DK-44, which was essentially a non-tillering hybrid (and this is considered an asset in dryland production) but is no longer commercially available.

Plant density was measured in the harvest area. Plant establishment—the percentage of seeds that became plants ranged from a high of about 80% at the lowest seeding rate decreasing to less than 50% at the highest seeding rate in 2010. Actual plant population numbers are more indicative of sorghum performance than the seeding rate.

RESULTS & COMMENTS:

The plant population had no effect on grain test weight in any year of the trial (results not shown). Yield results, however, over the three years of the test demonstrated all three possible outcomes (Table 1):

- 2008—Increasing seeding rate had no effect on yield for Pioneer 84G62 (maximum plant density of 54,000/A)
- 2009—Seed establishment was low (one-half down to only one-third of seeds became established plants. In this instance, yield increased steadily to the highest seeding rate, however, the plant population was in fact at most 34,000 plants/A. Numerically, the highest yields were achieved at the highest seeding rate, but this in fact represented populations that were still low. Lowest yields were observed at populations <20,000 plants/A, where the hybrid truly had insufficient capacity to produce comparable yields.
- 2010—Lowest populations had the highest yield, which steadily declined with increasing populations. This trend was observed with both hybrids. The relatively early planting suggests that by the time the large rains in early July were received, that the subsequent dry weather would have had minimal impact on the yield.
- Three-Year Results: What do we make of, let alone recommend, about irrigated seeding rates in light of the varied yield results with seeding rate? The bottom line suggests that modest plant populations will not significantly diminish yield potential but higher populations, especially when conditions are droughty, can potentially harm yield. Based on soil moisture, typical May-June-July rainfall and the targeted irrigation level a seed rate near 50,000 would be reasonable for this trial (subsequent plant population ~35,000 plants/A).

This study was duplicated at the Texas AgriLife Research farm at Halfway, TX (Hale Co.), and it will be repeated in 2009 at AG-CARES.

For additional sorghum production resources in West Texas visit http://lubbock.tamu.edu or access the South/Rolling Plains sorghum production handbooks, which were compiled by Texas AgriLife, and published by the United Sorghum Checkoff Program.

Please visit the Texas AgriLife Crop Testing webpage at http://varietytesting.tamu.edu

Table 1. Three-year summary of irrigated grain sorghum seeding rate trials for medium-long maturity Pioneer 84G62, AGCARES, Lamesa, TX. Target irrigation levels were comparable across all three years. Single-year trial results are also reported for one additional hybrid in 2010.

Pioneer 84G62		2008			2009			2010			Three-Year Average		
Targeted seeds/foot (40" row)	Targeted seeds per acre	Plants per acre	Plants/A as % of seeds/A	Yield per acre @ 13% H_2O (Lbs./A)	Plants per acre	Plants/A as % of seeds/A	Yield per acre @ 13% H_2O (Lbs./A)	Plants per acre	Plants/A as % of seeds/A	Yield per acre @ 13% H_2O (Lbs./A)	Plants per acre	Plants/A as % of seeds/A	Yield per acre @ 13% H_2O (Lbs./A)
2	26,000	25,400	97%	5,157	13,200	51%	5,777	22,900	88%	5,924	20,500	79%	5,619
3	39,000	35,500	91%	5,647	18,700	48%	6,114	28,000	72%	5,168	27,400	70%	5,643
4	52,000	36,800	70%	5,636	22,600	43%	6,390	38,200	73%	5,207	32,500	62%	5,744
5	65,000	40,700	62%	5,376	25,700	41%	6,640	43,300	67%	4,787	36,600	56%	5,601
6	48,000	46,000	59%	5,126	28,600	38%	6,789	56,700	73%	4,258	43,800	56%	5,391
7	91,000	51,600	56%	5,545	33,800	38%	6,820	54,500	60%	4,161	46,600	51%	5,509
8	105,000	54,300	52%	5,601	33,300	32%	6,617	61,200	58%	3,931	49,600	47%	5,383
	Average	*41,300*		*5,401*	*25,100*		*6,450*	*43,500*		*4,777*			*5,556*
	P-Value, Seed Rate	<0.0001		0.437	<0.0001		0.1086	<0.0001		<0.0001			
	Fisher's LSD (0.05)†	5,200		NS	5,300		NS	5,500		504			
	Coeff. of Var. (%CV)	22.7		11.4	28.6		8.3	32.7		16.6			

DK-44 at 65,000 seeds/A yielded 5,510 lbs./A at 24,300 plants/A in 2009.

ChannelBio 7C22 (formerly NC+)

1	26,000	20,600	79%	4,647
2	39,000	32,500	83%	4,113
3	52,000	35,100	67%	3,983
4	65,000	47,800	74%	3,570
5	78,000	54,900	70%	3,482
6	91,000	56,600	62%	3,826
7	105,000	63,000	60%	3,063
				3,812
	P-Value, Seed Rate	<0.0001		0.0024
	Fisher's Least Sig. Difference (0.05)	3,400		555
	Coefficient of Variation (%CV)	32.9		16.2

†Means in the same column that differ by more than the least significant difference (LSD) are significantly different at the 95% confidence level.

TITLE:

Dryland Grain Sorghum Hybrid Trial, 2010, AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Calvin Trostle, Extension agronomist; Sean Wallace, Extension assistant; Danny Carmichael, research associate.

MATERIALS AND METHODS:

Plot Size:	Four 40-inch rows X 25' (harvest middle two rows)
Planting Date:	6-22-09 with cones mounted on a JD Max-Emerge planter
Seeding Rate:	32,700 seeds/A (~2.5 seeds per foot of 40" rows)
Fertilizer:	40-2-0-10 on March 30
Herbicide:	Propazine, ~ 0.75 quarts/A
Insecticide:	Two sprays using Hero for sorghum midge, 8/19 & 8/22
Harvest Date:	November 10-11, 2010

COMMENTS: Initial stands were satisfactory, but due to planting the sorghum on top of beds, some hybrids had trouble standing as the brace roots had trouble penetrating the soil (hotter and drier on the top of the bed), but timely cultivation place sufficient soil around the base of the plants to establish a good brace root system.

Plant populations were regarded as near optimum for this type of dryland production, about 2/3 of planted seed becoming viable plants. Yields were good as the crop took advantage of both stored soil moisture and significant rainfall.

Light sorghum midge was observed in the plots, and two sprays were made in late August.

This test was duplicated at Chillicothe (Rolling Plains) and Ballinger (Concho Valley).

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For further information about this report, contact Dr. Calvin Trostle, extension agronomist, Lubbock, (806) 746-6101, ctrostle@ag.tamu.edu

Please visit the Texas AgriLife Crop Testing webpage at http://varietytesting.tamu.edu

For additional sorghum production resources in West Texas visit http://lubbock.tamu.edu

UNITED SORGHUM CHECKOFF PROGRAM

This project was made possible through producer funding received from the United Sorghum Checkoff Program.

TITLE:

Peanut Varietal Tolerance to Herbicides Applied Preemergence and Postemergence at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Peter Dotray, Lyndell Gilbert, Professor, Technician II
Texas AgriLife Research and Extension Service, Lubbock

MATERIALS AND METHODS:

Plot Size:	2 rows by 40 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Planting Date:	April 28
Varieties:	Flavorrunner 458, Tamrun OL01, Tamrun OL02, Tamrun OL07
Application Dates:	Preemergence (PRE), April 30; Postemergence (POST), June 2
Rainfall (May to Sept):	17.38 inches
Irrigation (May to Sept):	10.18 inches
Digging Date:	October 11
Harvest Date:	October 20

RESULTS AND DISCUSSION:

The release of new crop varieties and the registration of new herbicides warrants testing to determine if some varieties are more susceptible to herbicide injury than others. Previous research has shown that peanut market types and varieties within a market type may have differential tolerance levels to various herbicides. The objective of this research initiated in 2009 and repeated in 2010 was to examine peanut response to Valor SX at 1.5, 3, and 6 oz/A (0.5X, 1X, and 2X the recommended labeled rate) and Cadre at 2, 4, and 8 oz/A (0.5X, 1X, and 2X the recommended labeled rate) when applied to four runner market type varieties (Flavorrunner 458, Tamrun OL01, Tamrun OL02, Tamrun OL07). Preemergence (PRE) applications were made on Apr 30 and followed by 0.5 inches of overhead irrigation. Postemergence (POST) applications were made June 2. No variety by herbicide interaction was observed for peanut injury on Jul 7, Jul 26, and Sep 20; therefore, herbicides may be pooled within variety to compare varieties, and varieties may be pooled within herbicide to compare herbicides. Since there was no difference among varieties, only differences among herbicides are reported. On Jul 7, Valor SX and Cadre injured peanut 2 to 12% and 4 to 19%, respectively (Table 1a). Peanut injury increased as rate increased. On Jul 26 and Sept 20, no Valor-induced injury was apparent. On these dates, the normal use rate of Cadre (4 oz) caused 3% injury, while the 2X rate (8 oz) caused up to 8% injury. A variety by herbicide interaction was observed for peanut yield and grade; therefore, herbicides may be pooled within variety to compare varieties, and varieties may be pooled within herbicide to compare herbicides. Since there were no differences among herbicides, only differences among varieties are reported. Flavorrunner 458 produced the greatest yield (6470 lb/A) followed by Tamrun OL02 (6146 lb/A) (Table 1b). Tamrun OL01 and OL07 produced the lowest yield (5667 and 5682, respectively). Peanut grade ranged from 69 to 72 and the best grade was observed in Tamrun OL01. This study suggests that Valor SX applied preemergence and Cadre applied postemergence may cause some peanut stunt and/or chlorosis following application, although no yield loss was observed. A comparison of variety yield suggested that Flavorrunner 458 was the greatest yielding variety at this location. Results from 2009 suggested that visible peanut injury was dependent on not only the herbicide chosen and its rate, but also on the variety planted. Valor SX at 3 and 6 oz/A did not adversely affect peanut yield when pooled across varieties; however, lower peanut yield was observed following all rates of Cadre.

Table 1a. Peanut injury by herbicide when pooled over variety at AG-CARES, Lamesa, TX, 2010[a].

Treatment	Timing	Prod.	Rate	Peanut Injury		
				Jul 7	Jul 26	Sep 20
		oz/A	lb ai/A	---------------%---------------		
Non-treated	---	---	---	0	0	0
Valor SX	PRE	1.5	0.048	2	0	0
Valor SX	PRE	3	0.096	6	0	0
Valor SX	PRE	6	0.191	12	0	0
Cadre + COC	POST	2	0.0315 + 1%	4	0	0
Cadre + COC	POST	4	0.063 + 1%	12	3	3
Cadre + COC	POST	8	0.126 + 1%	19	8	3
pValue				0.0001	0.0001	0.0001
$LSD_{(0.10)}$				2	2	1

[a]Abbreviations: COC, crop oil concentrate; PRE, preemergence; POST, postemergence topical

Table 1b. Peanut yield and grade by variety when pooled over herbicide treatments at AG-CARES, Lamesa, TX, 2010.

Variety	Yield	Grade
	lb/A	
Flavorrunner 458	6470	71
Tamrun OL01	5667	72
Tamrun OL02	6146	69
Tamrun OL07	5682	71
pValue	0.0001	0.0001
$LSD_{(0.10)}$	275	1

TITLE:

Peanut Tolerance to Valor Tank Mix Combinations at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Peter Dotray, Lyndell Gilbert, Professor, Technician II
Texas AgriLife Research and Extension Service, Lubbock

MATERIALS AND METHODS:

Plot Size:	4 rows by 30 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Planting Date:	April 28
Variety:	Flavorrunner 458
Application Date:	Preemergence (PRE), April 30; At-crack (AC), May 12
Rainfall (May to Sept.):	17.38 inches
Irrigation (May to Sept.):	10.18 inches
Digging Date:	October 11
Harvest Date:	October 20

RESULTS AND DISCUSSION:

Valor SX is labeled for use in peanut. This herbicide effectively controls kochia, common lambsquarter, several pigweed species including Palmer amaranth (carelessweed), golden crownbeard, and several annual morningglory species including ivyleaf morningglory. Valor SX may be applied prior to planting or preemergence. According to the Valor SX label, preemergence applications must be made within 48 hours of 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. Some growers have expressed an interest in the possibility of tank mixing Valor with Gramoxone Inteon (paraquat). A study was conducted in 2009 and repeated in 2010 to determine peanut response to Valor at 0, 2, and 3 oz/A and Gramoxone Inteon at 0, 8, and 16 oz/A applied alone and in tank mixture and applied preemergence (PRE) or at (ground) crack (AC). Flavorrunner 458 was planted Apr 28. PRE applications were made Apr 30 followed by 0.5 inches of overhead irrigation. AC applications were made May 12. No Valor by Gramoxone Inteon by application timing interaction was observed for peanut injury on May 26, Jun 9, or Jun 25. The only two-way interaction that was significant was the Valor by application timing combination. Valor SX at 2 and 3 oz/A applied AC injured peanut 22 to 26% on May 26 (28 days after planting (DAP)), 24 to 34% on Jun 9 (58 DAP), and 12 to 14% on Jun 25 (42 DAP) (Table 1a). A three-way interaction was observed for peanut yield and grade; therefore, all treatment combinations are compared. Peanut yield ranged from 5049 to 5738 lb/A and was not different from the non-treated control (5408 lb/A) (Table 1b). Peanut grade ranged from 69 to 73 and was not different from the non-treated control (71). Results from this study suggest that Valor SX should not be applied AC regardless if Gramoxone Inteon is applied in tank mixture. No peanut injury was observed when these herbicides were applied in tank mix preemergence. The current Valor SX label states that applications must be made within 48 hours of planting. There is a risk of peanut injury if Valor SX applications are delayed and peanuts are emerging.

Table 1a. Peanut injury by Valor rate and application timing averaged over Gramoxone Inteon rates at AG-CARES, Lamesa, TX, 2010[a].

Treatment	Rate	Prod.	Timing	Peanut Injury		
				May 26	Jun 9	Jun 25
	lb ai/A	oz/A		-----------------	%	-----------------
Valor SX	0	0	PRE	0	0	0
Valor SX	0	0	AC	0	0	1
Valor SX	0.064	2	PRE	0	0	0
Valor SX	0.064	2	AC	22	24	12
Valor SX	0.096	3	PRE	0	1	0
Valor SX	0.096	3	AC	26	34	14
pValue				0.0001	0.0001	0.0001
$LSD_{(0.10)}$				2	2	2

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

Table 1b. Peanut injury, yield, and grade as affected by Valor tank mix combinations at different application timings at AG-CARES, Lamesa, TX, 2010[a].

Treatment	Rate	Prod.	Timing	Peanut Injury		Yield	Grade
				Jul 7	Sep 20		
	lb ai/A	oz/A		--------%--------		lb/A	
Valor SX + Gramoxone Inteon	0 + 0	0 + 0	PRE	0	0	5408	71
Valor SX + Gramoxone Inteon	0 + 0	0 + 0	AC	0	0	5336	71
Valor SX + Gramoxone Inteon	0.064 + 0	2 + 0	PRE	0	0	5673	71
Valor SX + Gramoxone Inteon	0.064 + 0	2 + 0	AC	14	8	5342	70
Valor SX + Gramoxone Inteon	0.096 + 0	3 + 0	PRE	0	0	5357	69
Valor SX + Gramoxone Inteon	0.096 + 0	3 + 0	AC	12	6	5362	71
Valor SX + Gramoxone Inteon + NIS	0 + 0.125 + 0.25%	0 + 8 + 3.2	PRE	0	0	5264	69
Valor SX + Gramoxone Inteon + NIS	0 + 0.125 + 0.25%	0 + 8 + 3.2	AC	2	0	5702	71
Valor SX + Gramoxone Inteon + NIS	0.064 + 0.125 + 0.25%	2 + 8 + 3.2	PRE	0	0	5338	73
Valor SX + Gramoxone Inteon + NIS	0.064 + 0.125 + 0.25%	2 + 8 + 3.2	AC	9	4	5400	69
Valor SX + Gramoxone Inteon + NIS	0.096 + 0.125 + 0.25%	3 + 8 + 3.2	PRE	0	0	5213	71
Valor SX + Gramoxone Inteon + NIS	0.096 + 0.125 + 0.25%	3 + 8 + 3.2	AC	13	6	5379	72
Valor SX + Gramoxone Inteon + NIS	0 + 0.25 + 0.25%	0 + 16 + 3.2	PRE	0	0	5049	72
Valor SX + Gramoxone Inteon + NIS	0 + 0.25 + 0.25%	0 + 16 + 3.2	AC	5	3	5616	71
Valor SX + Gramoxone Inteon + NIS	0.064 + 0.25 + 0.25%	2 + 16 + 3.2	PRE	0	0	5587	72
Valor SX + Gramoxone Inteon + NIS	0.064 + 0.25 + 0.25%	2 + 16 + 3.2	AC	11	5	5388	72
Valor SX + Gramoxone Inteon + NIS	0.096 + 0.25 + 0.25%	3 + 16 + 3.2	PRE	0	0	5738	71
Valor SX + Gramoxone Inteon + NIS	0.096 + 0.25 + 0.25%	3 + 16 + 3.2	AC	12	5	5551	71
pValue				0.0321	0.0519	0.7131	0.5928
$LSD_{(0.10)}$				2	2	NS	NS

[a]Abbreviations: AC, at-crack; NIS, non-ionic surfactant; PRE, preemergence

TITLE:

Peanut Response to Dual Magnum Applied Postemergence at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Peter Dotray, Lyndell Gilbert, Professor, Technician II
Texas AgriLife Research and Extension Service, Lubbock

MATERIALS AND METHODS:

Plot Size:	4 rows by 30 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Planting Date:	April 28
Variety:	Flavorrunner 458
Application Date:	Postemergence (POST), June 9
Rainfall (May to Sept.):	17.38 inches
Irrigation (May to Sept.):	10.18 inches
Digging Date:	October 11
Harvest Date:	October 20

RESULTS AND DISCUSSION:

The use of Cobra and 2,4-DB postemergence to control annual broadleaf weeds is common in peanut production. Several growers have asked about the addition of Dual Magnum in tank mix to provide residual weed control following application. The objective of this research was to determine if the addition of Dual Magnum to either Cobra or 2,4-DB would increase the peanut injury following these tank mixtures. Flavorrunner 458 was planted April 28 and the postemergence applications were made Jun 9 (42 days after planting (DAP)). Cobra plus crop oil concentrate (COC) injured peanut 10% 7 days after application (DAA)(Table 1). When Dual Magnum was added to this mix, injury increased to 20%. Cobra plus non-ionic surfactant (NIS) injured peanut 5% 7 DAA. When Dual Magnum was added to this tank mix, injury increased to 12%. Cobra plus Dual Magnum alone injured peanut 9%, which was similar to Cobra plus COC but greater than Cobra plus NIS. On Jun 25 (16 DAA), Cobra plus COC or NIS injured peanut 5% and 2%, and the addition of Dual Magnum increased this injury to 15% and 10%. Cobra plus Dual Magnum injured peanut 11% 16 DAA, which was greater than Cobra plus COC or NIS. On Jul 26 and Sept 20, injury from the addition of Dual Magnum to Cobra plus COC or NIS was still visible. 2,4-DB plus COC or NIS injured peanut 2% and 3% 7 DAA. The addition of Dual Magnum increased injury to 9% regardless of adjuvant used. No enhanced injury from Dual Magnum was apparent at any of the remaining observation dates. Peanut yield from the non-treated (weed free) control was 5669 lbs/A, which was not greater than any of the Cobra and 2,4-DB treatments. Peanut grade ranged from 72 to 69, and no differences were observed among treatments. These results suggest that the addition of Dual Magnum to Cobra or 2,4-DB applications may enhance visible peanut injury after application, but no adverse affect on yield or grade would be expected.

Table 1. Peanut injury and yield as affected by Dual Magnum applied postemergence at AG-CARES, Lamesa, TX, 2010[a].

Treatment	Rate	Prod.	Timing	Peanut injury Jun 16	Jun 25	Jul 26	Sep 20	Yield	Grade
	oz/A	lb ai/A		--------------------%--------------------				lb/A	
Non-treated	---	---	---	0	0	0	0	5669	71
Dual Magnum	21.3	1.27	POST	1	4	0	0	5561	72
Prowl H2O	33.7	1	POST	1	1	0	0	6197	72
Prowl H20 + Dual Magnum	33.7 + 21.3	1 + 1.27	POST	4	2	0	0	5683	71
Cobra + COC	12.8	0.2 + 1%	POST	10	5	2	3	5748	69
Cobra + Dual Magnum + COC	12.8 + 21.3	0.2 + 1.27 + 1%	POST	20	15	8	5	5265	71
Cobra + NIS	12.8	0.2 + 0.25%	POST	5	2	0	0	5360	70
Cobra + Dual Magnum + NIS	12.8 + 21.3	0.2 + 1.27 + 0.25%	POST	12	10	3	2	5842	72
Cobra + Dual Magnum	12.8 + 21.3	0.2 + 1.27	POST	9	11	0	0	5886	70
2,4-DB + COC	25.6	0.4 + 1%	POST	2	8	0	0	6261	70
2,4-DB + Dual Magnum + COC	25.6 + 21.3	0.4 + 1.27 + 1%	POST	9	8	0	0	6124	70
2,4-DB + NIS	25.6	0.4 + 0.25%	POST	3	5	0	0	5885	69
2,4-DB + Dual Magnum + NIS	25.6 + 21.3	0.4 + 1.27 + 0.25%	POST	9	8	2	2	6276	72
2,4-DB + Dual Magnum	25.6 + 21.3	0.4 + 1.27	POST	7	7	0	0	5626	70
CV				19	47	195	181	7	3
pValue				0.0001	0.0001	0.0021	0.0041	0.0617	0.5116
$LSD_{(0.10)}$				2	4	3	2	540	NS

[a]Abbreviations: COC, crop oil concentrate; NIS, non-ionic surfactant; POST, postemergence topical

TITLE:

Peanut Response to Ignite Herbicide at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Peter Dotray, Lyndell Gilbert, Professor, Technician II
Texas AgriLife Research and Extension Service, Lubbock

MATERIALS AND METHODS:

Plot Size:	4 rows by 30 feet, 4 replications
Soil Type:	Amarillo fine sandy loam
Planting Date:	April 28
Variety:	Flavorrunner 458
Application Dates:	30 days after planting (DAP), May 26; 60 DAP, Jun 25; 90 DAP, Jul 26
Rainfall (May to Sept.):	17.38 inches
Irrigation (May to Sept.):	10.18 inches
Digging Date:	October 11
Harvest Date:	October 20

RESULTS AND DISCUSSION:

The use of Ignite 280 may increase with the registration of GlyTol plus LibertyLink cotton in 2011. The objective of this research was to determine peanut response if a mis-application of Ignite 280 occurred over-the-top of peanut at different growth stages. Ignite 280 was applied at 0, 2, 4, 8, 16, and 32 oz/A (a normal use rate is 22 to 29 oz/A). Applications were made postemergence at 30, 60, and 90 days after planting (DAP). Flavorrunner 458 was planted on April 28 and applications were made May 26, Jun 25, and Jul 26. A herbicide rate by timing interaction occurred at all rating dates and for yield; therefore, injury and yield from each of the Ignite 280 rates are shown separately at each application timing. On Jun 9, 14 days after the 30 DAP application, Ignite 280 injured peanut 20 to 94% (Table 1a). Injury increased as rate increased. This injury was apparent all season and ranged from 6 to 61% on Sep 20. On Jul 7, 12 days after the 60 DAP application, peanut was injured 13 to 92%. This injury was apparent at each subsequent observation and ranged from 4 to 96% on Sep 20. On Aug 9, 14 days after the 90 DAP application, peanut was injured 25 to 83% and was apparent at each subsequent observation. On Sept 20, injury following the 90 DAP treatments ranged from 24 to 76%. At each Ignite 280 rate except for the 32 oz rate, yield decreased as application timing was delayed. At a given application timing, yield decreased as rate increased. There was no herbicide rate by application timing interaction for peanut grade; therefore, grade was pooled within application timing and within Ignite 280 rate. The lowest grade followed the 60 DAP application (Table 1b). Only the 2 oz rate of Ignite 280 did not reduce grade when compared to the non-treated control (Table 1c). Results from this study suggest that peanut is very susceptible to Ignite 280. Visible injury following application was very apparent and yield and grade loss was significant. In general, as rate increased and application was delayed, greater yield loss was observed. This study also supports previous research that Ignite 280 applications in LibertyLink cotton are effective at controlling volunteer peanut.

Table 1a. Peanut injury and yield as affected by Ignite 280 herbicide applications at AG-CARES, Lamesa, TX, 2010[a].

Treatment	Rate	Prod.	Timing	Peanut Injury							Yield
				Jun 9	Jun 25	Jul 7	Jul 26	Aug 9	Aug 23	Sep 20	
	lb ai/A	oz/A		-------------	-------------	-------------	%	-------------	-------------	-------------	lb/A
Ignite 280	0	0	30 DAP	0	0	0	0	0	0	0	5677
Ignite 280	0	0	60 DAP			0	0	0	0	0	6282
Ignite 280	0	0	90 DAP					0	0	0	6185
Ignite 280	0.0364	2	30 DAP	20	18	16	5	1	7	6	5832
Ignite 280	0.0364	2	60 DAP			13	4	5	4	4	5183
Ignite 280	0.0364	2	90 DAP					25	23	24	3936
Ignite 280	0.073	4	30 DAP	40	33	25	11	8	16	13	5786
Ignite 280	0.073	4	60 DAP			19	6	9	8	8	4984
Ignite 280	0.073	4	90 DAP					38	26	25	3413
Ignite 280	0.146	8	30 DAP	63	65	46	38	28	38	34	4696
Ignite 280	0.146	8	60 DAP			35	25	25	31	28	3548
Ignite 280	0.146	8	90 DAP					61	43	40	2422
Ignite 280	0.29	16	30 DAP	86	83	74	75	65	60	56	3110
Ignite 280	0.29	16	60 DAP			64	75	59	54	50	2373
Ignite 280	0.29	16	90 DAP					73	54	58	1381
Ignite 280	0.58	32	30 DAP	94	89	83	85	81	65	61	2533
Ignite 280	0.58	32	60 DAP			92	99	98	98	96	92
Ignite 280	0.58	32	90 DAP					83	73	76	912
pValue				0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
$LSD_{(0.10)}$				3	2	3	3	4	9	7	409

[a]Abbreviations: DAP, days after planting

Table 1b. Peanut grade as affected by application timing at AG-CARES, Lamesa, TX, 2010[a].

Treatment	Timing	Peanut Grade
Ignite 280	30 DAP	67
Ignite 280	60 DAP	64
Ignite 280	90 DAP	66
pValue		0.0033
$LSD_{(0.10)}$		2

[a]Abbreviations: DAP, days after planting

Table 1c. Peanut grade as affected by Ignite 280 herbicide rate at AG-CARES, Lamesa, TX, 2010.

Treatment	Rate	Prod.	Peanut Grade
	lb ai/A	oz/A	
Ignite 280	0	0	70
Ignite 280	0.0364	2	69
Ignite 280	0.073	4	68
Ignite 280	0.146	8	66
Ignite 280	0.29	16	62
Ignite 280	0.58	32	59
pValue			0.0001
$LSD_{(0.10)}$			2

TITLE:

Evaluation of Quash fungicide for Peanut Leaf Spot Control at AG-CARES, Lamesa, TX, 2010.

AUTHOR:

Jason Woodward, Extension Plant Pathologist, Texas AgriLife Extension Service, Lubbock

MATERIALS AND METHODS:

Plot size:	2-rows by 50 feet, 4 replications per irrigation level
Soil type:	Amarillo fine sandy loam
Planting date:	7-May
Cultivar:	Flavorunner 458
Digging date:	13-Oct
Harvest date:	23-Oct

RESULTS AND DISCUSSION:

Significant differences in leaf spot were observed among treatments under both irrigation regimes (Table 1). For the moderate irrigation regime, all fungicides programs performed similarly and provided superior leaf spot control compared to the non-treated control. The higher rate of Quash provided the greatest level of control under the high irrigation regime. Overall, the level of leaf spot observed in these trials did not surpass 5% defoliation. There were no differences in grades for any of the treatments under either irrigation regime. Grades averaged 73.6 and 73.2% smk+ss for the moderate and high irrigation levels, respectively. Pod yields were variable among replications for both irrigation levels and averaged 3753 and 4020 lb/A, respectively; however, no differences among treatments were observed.

Table 1. Effect of Quash fungicide on leaf spot incidence, grade and yield of Flavorruner458 peanuts under two irrigation levels at AG-CARES in 2010

Trt	Description	Rate (oz/A)	Timing (DAP)	Leaf spot (1-10scale)	Grade (% smk+ss)	Pod yields (lb/A)
Moderate irrigation level						
1	Non-treated control	-----	-----	5.13 a	75.1	3488.1
2	Bravo WeatherStik	24.0	75, 90, 105, &120	2.25 b	72.8	3187.8
3	Bravo WeatherStik Quash	24.0 2.5	75 &120 90 &105	2.13 b	72.9	3672.9
4	Bravo WeatherStik Quash	16.0 4.0	75 &120 90 &105	2.25 b	73.9	4517.7
5	Bravo WeatherStik Folicur	16.0 7.2	75 &120 90 &105	2.13 b	73.3	3897.3
LSD (P<0.05)				**0.45**	**NS**	**NS**
High irrigation level						
1	Non-treated control	-----	-----	4.25 a	74.3	4303.2
2	Bravo WeatherStik	24.0	75, 90, 105, &120	2.13 bc	73.7	3897.3
3	Bravo WeatherStik Quash	24.0 2.5	75 &120 90 &105	2.38 b	72.1	4022.7
4	Bravo WeatherStik Quash	16.0 4.0	75 &120 90 &105	2.00 c	72.7	3953.4
5	Bravo WeatherStik Folicur	16.0 7.2	75 &120 90 &105	2.38 b	72.8	3923.7
LSD (P<0.05)				**0.37**	**NS**	**NS**

TITLE:

Evaluation of Topguard Fungicide on Peanut Leaf Spot at AG-CARES, Lamesa, TX, 2010.

AUTHORS:

Jason Woodward, Extension Plant Pathologist, Texas AgriLife Extension Service, Lubbock

MATERIALS AND METHODS:

Plot size:	2-rows by 50 feet, four replications
Soil type:	Amarillo fine sandy loam
Planting date:	7-May
Cultivar:	Flavorunner 458
Digging date:	13-Oct
Harvest date:	22-Oct

RESULTS AND DISCUSSION:

Topguard (active ingredient flutriafol) is an experimental triazole fungicide seeking a label in peanuts. Topguard is active against early and late leaf spot. Field trials have been conducted on the High Plains to evaluate the performance of increasing rates of Topguard under low to moderate leaf spot pressure. Early leaf spot was the primary disease observed in the field, with initial symptoms being observed in mid-August (data not shown). Leaf spot intensity approached 20% defoliation in non-treated control plots (Table 1). All fungicide programs resulted in improved leaf spot control compared to non-treated controls. In general, increasing rates of Topguard lead to improved leaf spot control. Significant differences in yield were observed among treatments. Overall, leaf spot levels were lower the non-treated control and the lowest rate of Topguard. Increased rates of Topguard provided yields equivalent to the commercially available fungicides Provost and Folicur. These results indicate that fungicide applications can reduce damage caused by leaf spot; however, disease levels experienced were relatively low. Additional studies evaluating these products in fields with higher leaf spot pressure soilborne disease pressure are needed, so that we can better identify the proper use of these products on the Southern High Plains of Texas.

Table 1. Effect of increasing rates of Topguard fungicides on leaf spot intensity and yield of Gregory peanuts at AG-CARES in 2010

Trt	Description	Rate/A	Application timing (DAP)[†]	Leaf spot (1-10scale)	Pod yields (lb/A)
1	Bravo WeatherStik Topguard	24 fl oz 7 fl oz	60 75 & 105	3.25 b	2145.0 bc
2	Bravo WeatherStik Topguard	24 fl oz 10 fl oz	60 75 & 105	2.88 bc	2537.7 abc
3	Bravo WeatherStik Topguard	24 fl oz 14 fl oz	60 75 & 105	2.25 de	2798.1 a
4	Bravo WeatherStik Topguard	24 fl oz 28 fl oz	60 75 & 105	2.25 de	2550.9 ab
5	Bravo WeatherStik Folicur	24 fl oz 7.2 fl oz	60 75 & 105	2.13 e	2567.4 ab
6	Bravo WeatherStik Provost	24 fl oz 8 fl oz	60 75 & 105	2.00 e	2818.2 a
7	Bravo WeatherStik Topguard + Bravo WeatherStik	24 fl oz 7 fl oz 16 fl oz	60 75 & 105	2.63 cd	2692.8 a
8	Untreated control	-----	-----	5.88 a	2118.6 c
LSD (P<0.05)				0.48	428.6

APPENDIX

Detailed Growing Season Climate Data at AG-CARES, Lamesa, TX 2010

Date	Max Temp °F	Min Temp °F	Max RH %	Min RH %	Average Wind Speed mil/hr	ET (in.)	Rainfall (in.)	Heat Units Cotton
April 1	79.9	57.6	81.6	22.8	11.8	0.23	0	0
2	67	40.7	59.6	6.4	9.5	0.23	0	0
3	78.8	30.5	70	8.8	8.5	0.25	0	0
4	87.9	49.5	95.8	9.4	7.5	0.27	0	0
5	89.8	60.1	92.5	11	11.4	0.29	0	0
6	86.2	55.2	92.8	7.4	11	0.33	0	0
7	65	35.1	49	10.2	10.3	0.23	0	0
8	69.8	26.7	66.3	9.2	4.6	0.19	0	0
9	80.3	38	47.5	11.5	10.2	0.29	0	0
10	88.6	43.8	73.4	6.8	5.6	0.26	0	0
11	80.9	52.4	91.1	24.7	7.4	0.18	0	0
12	77.3	59	93	34.4	11.2	0.18	0	0
13	68.7	58.6	88.2	58.9	14.8	0.12	0	0
14	68.2	58.6	94.7	62.7	13.5	0.11	0	0
15	60	57.4	96.3	89.7	7.2	0.03	1.5	0
16	65.3	50.3	96.8	74.4	16.1	0.08	1	0
17	53.6	48	95.5	82.9	11.7	0.05	0.4	0
18	63.3	44.5	95.7	53.3	5.9	0.14	0	0
19	56.1	47.4	94.4	74	3.8	0.06	0	0
20	75.5	47.2	97.7	36.5	7.8	0.17	0	0
21	82.9	50.9	97.1	24.8	8	0.21	0	0
22	82.2	55.7	90	27.2	10.5	0.22	0.6	0
23	66.6	44.7	79.1	21.3	10	0.2	0	0
24	75.9	48.6	70.1	18.1	10.6	0.27	0	0
25	78.2	44	86.7	12.6	4.1	0.22	0	0
26	61	45.5	75.2	43.2	10.5	0.17	0	0
27	70	41.2	90.7	23.1	4	0.18	0	0
28	86.5	49.1	68.7	11.2	11.1	0.31	0	0
29	89.4	59.7	80.5	9.6	13.6	0.38	0	0
30	72.1	49.7	75.4	18.2	11.4	0.27	0	0
May 1	64	45.1	59.9	25.2	7.4	0.17	0	0
2	73	37	73.8	12.4	7.7	0.23	0.2	0
3	74.3	42.8	69.7	15.5	5.6	0.22	0	0
4	89.9	44.4	65	7.8	7	0.32	0	7
5	82.8	48.7	52.4	17	7	0.28	0	6
6	96.8	49.3	83.5	4.8	8.7	0.36	0	13
7	74.1	54.9	81.2	22.3	11.9	0.28	0	5
8	59.6	46.7	50.3	23.7	10.6	0.17	0	0
9	75.7	55.2	94.5	44	8.6	0.15	0	5
10	92.4	53.3	91.3	5.7	10.9	0.37	0	13
11	93.4	48.7	86.8	6.2	8.9	0.35	0	11
12	92.2	62.5	92	5.3	8	0.33	0	17
13	74.4	48.1	87.5	29.8	10	0.22	0	1
14	71.4	53.7	97.2	31.5	12.9	0.09	0.5	3
15	63.7	54.8	96.2	73.8	6.6	0.08	0.35	0
16	78.1	55.2	96.9	46.1	2.9	0.13	0	7
17	79.1	60.6	96.7	42.9	8.5	0.2	0	10
18	84.2	56.3	96.8	35.1	8.9	0.24	0	10
19	88.8	59.8	94.4	10.2	7	0.31	0	14
20	91.3	51.4	82.3	8.6	5.7	0.29	0	11
21	93.6	62.6	88.9	21.1	12.5	0.34	0	18
22	96.2	69.7	84.1	15.8	12.8	0.37	0	23
23	87.2	71.1	83	38.8	13.9	0.27	0	19
24	87.4	70.6	81.5	34.3	14.2	0.3	0	19

Detailed Growing Season Climate Data at AG-CARES, Lamesa, TX 2010

Date	Max Temp °F	Min Temp °F	Max RH %	Min RH %	Average Wind Speed mil/hr	ET (in.)	Rainfall (in.)	Heat Units Cotton
May 25	84.4	63.1	95.1	38.7	8.4	0.18	0	14
26	86.8	64.6	93	33.1	7.7	0.23	0.1	16
27	89.5	60	93.8	24.1	5.8	0.26	0.1	15
28	91.6	60	77.9	19.1	5.8	0.29	0.13	16
29	93	62.1	75.2	15.2	6.8	0.32	0	18
30	94.8	61.8	66.3	15.2	6	0.31	0	18
31	94.9	61.2	75.1	15.7	5.8	0.3	0	18
June 1	96.2	66.4	83.7	15.3	8.7	0.33	0	21
2	92.5	62.8	89.5	29.6	5.8	0.24	0.25	18
3	91.6	60.5	92.3	21.8	5.7	0.28	0.2	16
4	101.4	66.3	79.8	8.4	7.6	0.37	0	24
5	110.1	66.5	77.9	7.8	5.2	0.35	0	28
6	99	69	78.5	26.3	9	0.34	0	24
7	97.6	75.9	75.2	20.2	9.1	0.33	0	27
8	96.3	70.4	78	22.3	8.8	0.33	0	23
9	96.8	66.3	78.6	24.4	7.2	0.32	0	22
10	101.5	70.2	85.6	15.3	9.9	0.37	0	26
11	100.8	72.7	79.6	12.6	11.2	0.41	0	27
12	93.7	73.7	83.5	34.8	15.7	0.36	0	24
13	96.5	75.3	80.1	27.4	12.7	0.36	0	26
14	94.8	65.5	95.8	32.6	8.4	0.25	1.9	20
15	82.7	65.4	93.4	59.9	10.5	0.17	0	14
16	92.2	69.3	85.1	26.8	11.8	0.34	0	21
17	95.2	69.7	83.8	26.3	12.6	0.37	0	22
18	98.7	69.9	85.7	20.6	9.2	0.35	0	24
19	98.2	71.5	78.4	24.2	9.3	0.36	0	25
20	98.4	67.7	85	22.2	11.1	0.34	0.5	23
21	98	68.7	81.7	19.9	8.4	0.34	0	23
22	100.6	70.6	76.6	16.7	10.1	0.4	0	26
23	96	69.1	79.6	22.6	7	0.32	0	23
24	94.3	69.2	78.9	20.5	5.6	0.3	0	22
25	95.4	70.3	72.6	23.4	7.6	0.23	0	23
26	96.8	68.9	82	23.4	8.4	0.17	0	23
27	92.5	67.3	88.4	26.9	6	0.1	0	20
28	78.1	64.7	90.8	59.9	9.5	0.07	0	11
29	80.9	66.9	94.3	54	9.9	0.08	0	14
30	82.5	65.2	94.1	49.3	8.3	0.08	0	14
July 1	78.8	67.5	95.2	65.9	6.9	0.04	0	13
2	75.4	68.6	95.7	81.5	6.7	0.02	0.75	12
3	73.7	69.5	95.6	84.6	9.4	0.02	1.5	12
4	79.1	65.5	96.3	70	8.7	0.03	1.5	12
5	81.1	71.3	93.7	69	6.7	0.05	1	16
6	84.9	70.3	93.6	40.8	3	0.03	0	18
7	86.3	68.1	92.7	41.5	4.7	0.06	1	17
8	81.6	68.6	94.4	61.7	5.6	0.04	0	15
9	90.5	67.9	94.6	46.4	5.9	0.14	0.1	19
10	83.7	69.8	94.6	55.2	3.7	0.15	0.5	17
11	91.2	70.7	89.8	42.7	6.5	0.25	0	21
12	89.4	67.4	94	53.3	3.6	0.16	0.9	18
13	89.6	71.8	92.9	52	4.8	0.23	0	21
14	93	74.1	92	43.3	7.3	0.24	0	24
15	89.2	71.5	83.3	43.1	4.8	0.19	0	20
16	90.9	73	85.4	33.7	3.5	0.22	0	22
17	92.4	66.3	91	20.5	4.2	0.26	0	19

Detailed Growing Season Climate Data at AG-CARES, Lamesa, TX 2010

Date	Max Temp °F	Min Temp °F	Max RH %	Min RH %	Average Wind Speed mil/hr	ET (in.)	Rainfall (in.)	Heat Units Cotton
July 18	93.5	64	88.1	22.3	5	0.28	0	19
19	91.2	65.8	87.5	34.4	5.2	0.26	0	18
20	89.9	70.5	84.3	38.4	7.8	0.27	0	20
21	89.3	69.2	85	36.6	7.5	0.24	0	19
22	91.2	69	88	31.7	7.5	0.28	0	20
23	91.7	69	91	35.8	8.6	0.28	0	20
24	88.7	70	85.3	39.9	8.6	0.26	0	19
25	89.7	64.1	91.3	29	6	0.25	0	17
26	91.4	63.6	87.7	29.6	5.4	0.25	0	17
27	88.5	62.7	93.2	38.2	5.5	0.2	0	16
28	90.2	66.6	94.3	38	6.6	0.22	0.6	18
29	86.4	68.1	93.1	38.6	6.6	0.22	0	17
30	93.6	66.1	88.9	33.3	4.2	0.24	0	20
31	96.2	69.6	89	23.8	3.9	0.26	0	23
August 1	97.7	69.6	69.1	24.2	4.4	0.28	0	24
2	97.1	64.2	80	13.7	4.5	0.28	0	21
3	96.5	65.9	71.4	21	5.1	0.29	0	21
4	95.3	66.9	84.2	21	4.3	0.27	0	21
5	95.4	68.3	84.8	24.5	3.3	0.24	0	22
6	95.1	68.4	84.6	25.4	5.3	0.26	0	22
7	97	68.1	85.5	23.9	5.4	0.28	0	23
8	95.9	73.8	63.1	25.1	7.3	0.31	0	25
9	93.4	66.2	91.2	31.9	5	0.22	0	20
10	94	65.7	95.7	30.2	3.9	0.24	0	20
11	96	70.2	83.9	28.6	3.6	0.25	0	23
12	95.3	68.1	90.7	26	3.7	0.25	0	22
13	96.9	69.7	75.1	23.5	5.1	0.28	0	23
14	95.8	67.2	80.6	26.1	4.4	0.26	0	22
15	95.4	69.6	79.6	31.7	5.1	0.25	0	23
16	94.5	70.8	90.8	29.4	5	0.25	0	23
17	99.7	69.4	90.4	19.2	6.9	0.3	0	25
18	94.6	68.7	90.1	33.3	3.9	0.22	0	22
19	96.4	66.7	89.8	26.2	4.8	0.26	0	22
20	98.8	74.2	66	26.3	7.2	0.3	0	27
21	95.8	68.6	83.8	25.1	4.1	0.24	0	22
22	96.8	71.2	62.5	22.2	4.9	0.27	0	24
23	99.1	64.4	78.9	13.9	3.5	0.25	0	22
24	86	67	74.2	49.9	10.7	0.24	0	17
25	82	58.5	72.3	15.3	7.4	0.25	0	10
26	85.4	56.2	69.1	27	3.4	0.21	0	11
27	89	57.8	88.3	26.1	3.4	0.2	0	13
28	91.4	66.7	67.9	25.4	7.7	0.29	0	19
29	92.6	65.9	61.5	27.9	7.2	0.28	0	19
30	93.3	70.6	86.8	32.7	8	0.26	0	22
31	93.1	66.9	85.5	32.1	5.5	0.2	0	20
September 1	96	64.1	93.5	27	6.2	0.24	2	20
2	93.7	66	93.5	31.8	5.3	0.23	0.5	20
3	78.7	58.6	88.7	27.2	8.3	0.22	0	9
4	84.2	53.9	93	20.3	2.9	0.19	0	9
5	94.8	56.1	82.8	14.2	6.6	0.28	0	15
6	92.5	65.3	78.9	22.2	8.1	0.29	0	19
7	84.5	62.2	91.8	45.7	5.7	0.16	0	13
8	84.8	67.7	89.9	44.3	5.9	0.17	0	16
9	93.1	63.8	95.3	30.4	5.1	0.21	0.5	18

Detailed Growing Season Climate Data at AG-CARES, Lamesa, TX 2010

Date	Max Temp °F	Min Temp °F	Max RH %	Min RH %	Average Wind Speed mil/hr	ET (in.)	Rainfall (in.)	Heat Units Cotton
September 10	91.5	66.2	92.8	23.4	5	0.22	0	19
11	96.2	57.8	88.2	10.1	3.5	0.22	0	17
12	85.7	69.9	93.2	47.6	5.2	0.16	0	18
13	89.7	66.9	93.7	31.5	4.5	0.2	0	18
14	91.3	65.2	90.9	29.4	5	0.21	0	18
15	92.4	67.8	78.2	32.8	5.8	0.22	0	20
16	91.7	63.4	94.1	32.1	4.5	0.19	0	18
17	83	62.9	95.1	48.5	3.4	0.14	1.9	13
18	83.7	64.3	94.9	47.2	3.4	0.16	0	14
19	82.5	62.7	95	42.1	3.6	0.15	0	13
20	77.6	61.3	94.5	60.9	4.8	0.12	0	9
21	81.8	67.2	94.4	57.7	6.9	0.15	0	15
22	80.1	68.7	91.1	55.9	8.1	0.12	0	14
23	84.4	69.8	92.3	53.3	7.5	0.14	0	17
24	79.3	66.2	95.4	63.5	3.9	0.09	0	13
25	77.6	64	95.6	66	2.8	0.09	0.4	11
26	74.7	54.6	95.4	31.9	6.1	0.16	0	5
27	81.3	49	94.8	31.1	2.3	0.15	0	5
28	85.8	55.5	86.4	25.5	4.2	0.18	0	11
29	88	54.2	93.5	24.3	2.3	0.16	0	11
30	84.5	57	88.3	27.3	2.9	0.16	0	11
October 1	83.1	57.8	87.8	34.4	4.5	0.17	0	10
2	80.5	56.2	83.7	29.7	4.9	0.16	0	8
3	63.9	49.4	91.2	52.3	6.6	0.1	0.3	0
4	69.5	49.4	85.7	45.8	6.6	0.13	0	0
5	77.2	49.3	86.8	33.7	6.7	0.17	0	3
6	78.8	49.9	89.6	28.5	3.4	0.14	0	4
7	81.2	48.5	92.8	21.3	2.6	0.14	0	5
8	79.6	47.9	90	19.6	3.7	0.16	0	4
9	86	49.2	84.1	20.7	4.4	0.17	0	8
10	85.1	50.9	88.8	14.6	4.4	0.16	0	8
11	80.5	48.2	91.1	21.8	3.1	0.14	0	4
12	80.4	47	89.5	20.5	3.9	0.15	0	4
13	74.4	49.2	89.1	30.5	4.4	0.14	0	2
14	78.6	43.6	84.2	25.3	3.2	0.14	0	1
15	83.1	43.4	89.3	16.7	2.7	0.13	0	3
16	82.7	44.9	82.9	15.6	3.6	0.15	0	4
17	83.5	53.5	61.6	18.9	5	0.18	0	9
18	84.9	48.3	87.9	22.5	3.8	0.14	0	7
19	77.4	50.7	93.1	39.9	4	0.12	0	4
20	79.3	53	87.8	43.2	4.8	0.12	0	6
21	73.1	58.4	92.4	63.3	6.7	0.08	0	6
22	75.1	58.3	93.4	22.1	5.3	0.14	0	7
23	78.1	53	63	15.8	8.1	0.2	0	6
24	79.3	46	75	17.5	7.6	0.19	0	3
25	82.5	52.7	54	18.8	10.7	0.24	0	8
26	73.8	40.2	68.2	13.4	4.6	0.14	0	0
27	74.9	45.9	70.7	12.7	4.4	0.15	0	0
28	68.4	40.8	52.3	12.9	4.5	0.13	0	0
29	74.5	29.5	81.2	14.4	5.9	0.16	0	0
30	89.4	37.9	72	12.7	5.3	0.18	0	4
31	84.8	46.7	66.9	10.8	4.9	0.16	0	6

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Result Demonstration Cooperators

Jay Coleman   Terry Coleman   Clint Flandermeyer

Dawson County Commissioners Court

Sam Saleh, County Judge
Ricky Minjarez, Commissioner, Precinct 1
Louis Addison, Commissioner, Precinct 2
Nicky Goode, Commissioner, Precinct 3
Foy O'Brien, Commissioner, Precinct 4

Cooperating Agencies

Farm Service Agency
Joe Hefner, County Executive Director
Wayne Sisson, Ag Credit Manager

Natural Resources Conservation District
Chad Reed, District Conservationist

Soil & Water Conservation District
Peggy Hughes

Although most yields were obtained in the best possible way, chances for yield differences still exist, due to variations in irrigation, rainfall, land uniformity, and other factors. For this reason, the results of these field trials should not be interpreted too closely. Small differences in yield or other data should probably be regarded as insignificant. Occasionally, results occur in demonstrations that cannot be readily explained. Keep in mind that, even in replicated research tests, relatively large yield differences between varieties can occur without being statistically significant.

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

Climate of Lamesa, Texas and Dawson County

Lamesa is located on the high, level South Plains region of Northwest Texas, at an elevation of 2,965 feet. It is near the center of Dawson County, and about eleven miles west of the Caprock Escarpment. Sulfur Springs Draw is oriented northwest to southeast across Dawson County, and runs through Lamesa. Fertile loam to sandy loam soils cover most of the Plains area of the county with some sandy lands in the western part. Lamesa is the center of a rich crop-livestock area.

The climate of Lamesa is semi-arid. It is characterized by extreme variability both in rainfall amounts and temperatures. Sunshine is abundant, with the infrequent cloudy weather occurring mostly during the winter and early spring months.

The average rainfall is 18.47 inches, but this value may be misleading because of the large differences from one year to the next. Extremely dry years were 1934, 1946, 1951, 1952, 1953, 1965, 1998 and 2001 with 10 inches or less. Only 7.06 inches fell in 1956. The wettest year on record was 1941 with 39.07 inches (233% of normal). More than 27 inches fell in 1932, 1935, 1986, and 2004. Seventy-five percent of the average annual rainfall occurs during the warmer half of the year, May through October. Most of this warm season rainfall is the result of thunderstorm activity, which helps to account for the extreme variability in amounts from year to year, and from one location to another.

Snow falls occasionally during the winter months, but is generally light, and remains on the ground only a short time. Infrequently, deep low pressure centers will develop over the South Plains during late January or February that will produce heavy snows in the region, but these excessive amounts are rare.

Temperatures, like rainfall, vary over a wide range. Winters are characterized by frequent cold periods followed by rapid warming. This produces frequent and pronounced temperature changes. Summers are hot and usually dry except for small thundershowers. Low humidity and adequate wind circulation, resulting in rapid evaporation help to moderate the effect of the heat. Evaporative coolers are quite efficient in the area.

The prevailing wind is from the south from about May through October, and from the southwest, November through April. The strongest winds occur during the severe thunderstorms of late spring and early summer, but these are gusts or squalls of short duration. The strongest continuous winds occur during March and April as a result of intense low pressure centers that originate on the High Plains region just to the east of the Rocky Mountains. These winds often produce severe dust storms in the region during drought years.

Humidity is rather low, with the highest values occurring during the early morning hours, and the lowest during the afternoons. Early morning values may be expected to average about 75 percent, while afternoon values will average between 40 and 45 percent. As would be expected, evaporation is high in this semi-arid region. Average annual lake evaporation is estimated at 72 inches per year.

Hail may accompany thunderstorms anytime they occur; however, the most damaging hailstorms are usually associated with the severe thunderstorms of the late spring or early summer.

The growing season is short when compared to Central or South Texas, but sufficiently long for cotton. The average freeze free period [the number of days between the last occurrence of 32 degrees F in the spring April 10^{th} and the first occurrence of 32 degrees in the fall Nov 10^{th} this approximately 215 days.

2010 DAWSON COUNTY COTTON PREMIER

Outcome Plan Summary

Dawson County Cotton Producers plant approximately 290,000 acres of cotton annually. According to the 2009 annual Ag Increment Report for Dawson County, this accounts for over $87 million of income for producers or 84% of all gross agriculture receipts earned in the County. Agricultural technologies and knowledge have, until recently, largely been created and disseminated by agencies and universities such as Texas AgriLife Extension Service, Texas AgriLife Research and Texas Tech University. But over the past two decades, biotechnology for agricultural production has developed rapidly and at the same time the world economy has become more global. In order to address the complexity associated with managing knowledge related to technologies and disseminating this information in a producer-friendly format, Texas AgriLife Extension has implemented a Premier Cotton Program strategy. The Dawson Ag Committee sited the enhancement of cotton production through educational programs relating to seed varieties, new technologies, marketing, water management, fertility and result demonstrations as the key issue for the survival of farmer's in Dawson County. The educational events will be targeted to not only the farmers but to all agribusinesses as well.

In order to address the complex agriculture and natural resource issues in the North Region, a Progressive Program Model utilizing Premier programs will be implemented. This programming strategy is characterized by the following guiding principles: 1)Programs will focus on consistent outcome indicators/teaching points that are identified by the Dawson Ag Committee. 2)Development of adoption-based evaluation metrics to effectively evaluate the impact of educational programs where Extension educators can refocus and redirect programming to more efficiently respond to clientele needs. 3)Development of a systematic educational program delivery strategy utilizing county, district, regional and educational venues and a variety of teaching methods (meetings, field days, result demonstrations, etc.). 4)Development of economic models that will assess the economic impact of adoption of various technologies at the enterprise level and the community level.

The following educational events and activities were conducted to address the issues as defined:

- **Southern Mesa Ag Conference** — **January**
- **Cotton Production Meeting** — **February**
- **USDA-FSA Farm Program Update** — **March**
- **Pesticide Private Applicator Training** — **April**
- **Lamesa Cotton Grower Farm Program Meeting** — **April**
- **Legislative Update Presented by Todd Staples** — **April**
- **Plant Irrigated Cotton Variety Test Trials (2)** — **June**
- **Cotton Fertility and Weed Control Meeting** — **July**
- **Dawson Ag Tour** — **September**
- **Cotton Harvest Aid Meeting** — **September**
- **Texas AgriLife/Lamesa Cotton Growers Cotton Variety Development Tour** — **September**
- **Cotton Marketing Meeting** — **October**
- **Harvest Irrigated Cotton Variety Test Trials (2)** — **November**

**Collaborators in the events included Specialists with the AgriLife Research, USDA-FSA, USDA-NRCS, Local and National seed and fertilizer companies, Lamesa Cotton Growers, Dawson Ag Committee, Chamber Ag Committee, Mesa Irrigation, Jay, Terry and Kelton Coleman, Clint Flandermeyer and Dr. Bo Brock.

RESULTS:
A retrospective post test was given to evaluate the effectiveness of the programs offered. Economic data was also included in the survey. Eighty-two Producers were given the survey to complete and all responded.
In addition, a Customer Satisfaction Survey was given to enhance awareness of AgriLife Extension as to the perception of meeting participants in their satisfaction of Extension Events. Thirty-five participants were issued the survey, Twenty-four were respondents.

Retrospective post results are as follows:

- 82% stated they Adopted already, Definitely or Probably will use/adopt profitable cotton varieties/technologies
- 76% stated they Adopted already, Definitely or Probably will use/adopt effective weed management strategies in transgenic cotton.
- 88% stated they Adopted already, Definitely or Probably will use/adopt best management practices to prevent/manage/delay weed resistance.
- 74% stated they Adopted already, Definitely or Probably will follow diagnostic procedures related to disease and nematode management.
- 73% stated they Adopted already, Definitely or Probably will use/adopt effective disease and nematode prevention management strategies.
- 83% stated they Adopted already, Definitely or Probably will use/adopt Arthropod management techniques.
- 85% stated they Definitely or Probably will adopt strategy to estimate soil water availability to improve scheduling irrigation.
- 65% stated they Definitely or Probably will adopt high efficiency irrigation technology.
- 92% stated they Definitely or Probably will develop a personalized cotton budget with break-even cost of production.
- 96% stated they Definitely or Probably will develop a written marketing plan.

Respondents represented 96,400 acres of dryland cotton production and 20,128 acres of irrigated cotton. They estimated that programs offered by AgriLife Extension improved their net income by $37 on dryland and $92 on irrigated acres. **The estimates, if accurate, would represent an added net income to respondents of approximately $5.4 million. If cotton producers countywide adopted the same practices and the estimates held true, it could mean an additional $15 million in added income.**

Customer Satisfaction results are as follows:

- **100% were mostly or completely satisfied with the overall activities.**
- 100% were mostly or completely satisfied with the information being accurate.
- 100% were mostly or completely satisfied with the quality of course materials.
- 100% were mostly or completely satisfied with the timeliness of information given on each topic.
- 100% were mostly or completely satisfied with the instructor's knowledge on the subject.
- 95% were mostly or completely satisfied with the relevance of examples used.
- 95% were mostly or completely satisfied with the completeness of information given on each topic.
- 95% were mostly or completely satisfied with the helpfulness of the information in decisions about your own situation.
- 91% were mostly or completely satisfied with the information being easy to understand.
- 100% were mostly or completely satisfied with the information being what they expected.
- 100% of respondents would attend another subject offered by Extension if it addressed a specific need or interest of theirs.
- 100% would recommend these activities to others.
- 100% said that the information and programs provided by Extension were quite or extremely valuable to them.
- **83%** ***anticipate benefitting economically as a direct result of what they learned from Extension activities.***
- **75%** ***plan to take actions or make changes based on information received.***

The education provided by Agrilife Extension in Dawson County is a viable part of the life blood of cotton producers here. Results provided by respondents indicate that with Extensions help, cotton producers in Dawson County should be able to make their operations more sustainable. A feat that is ever more valuable in today's troubled economic time.

Future programming efforts by AgriLife Extension in Dawson County will be based on recommendations from the Dawson Ag Committee. The committee will review survey results, combine them with emerging needs of the county and make suggestions based on Cotton Producers needs and interests.

Results of the Premier Cotton Program in Dawson County will be interpreted to the Dawson Ag Committee, Lamesa Cotton Growers, Chamber Ag Committee, Dawson County Commissioners, Legislators for our area and the Key Stakeholders in Dawson County.

I would like to acknowledge the following for their help and undying devotion to cotton production in Dawson County: Lamesa Cotton Growers, Tommy Doederlein, John Farris, Clint Flandermeyer, Terry and Jay Coleman, Dawson Ag Committee, Chamber Ag Committee, Randy Boman, Mark Kelley and Danny Carmichael.

Lamesa's Freeze Dates for the Past 61 Years

YEAR	LAST FREEZE IN SPRING	FIRST FREEZE IN THE FALL	LENGTH OF GROWING SEASON
1949	April 5	October 31	209 days
1950	April 6	November 4	212 days
1951	April 14	November 2	202 days
1952	April 11	November 10	213 days
1953	Missing	November 9	
1954	April 2	October 31	212 days
1955	March 29	October 25	210 days
1956	April 11	November 5	208 days
1957	April 14	October 27	196 days
1958	March 20	November 1	226 days
1959	April 15	October 28	196 days
1960	April 4	October 31	210 days
1961	April 17	November 3	200 days
1962	April 2	Missing	
1963	March 20	November 23	248 days
1964	April 10	November 20	224 days
1965	March 27	November 27	245 days
1966	March 25	November 2	222 days
1967	March 16	November 4	243 days
1968	April 4	November 11	221 days
1969	March 27	October 31	200 days
1970	April 3	October 10	190 days
1971	April 7	November 18	225 days
1972	March 31	October 31	214 days
1973	April 11	November 22	225 days
1974	April 5	November 25	234 days
1975	April 4	November 13	223 days
1976	March 31	October 9	192 days
1977	April 5	November 2	211 days
1978	April 11	November 7	210 days
1979	April 4	November 1	211 days
1980	April 14	October 29	198 days
1981	March 23	November 10	233 days
1982	March 8	November 4	242 days
1983	April 8	November 28	234 days
1984	April 5	November 27	235 days
1985	March 5	November 20	258 days
1986	March 22	November 11	222 days
1987	April 3	November 10	221 days
1988	March 20	November 16	241 days
1989	April 11	October 19	192 days
1990	March 26	October 22	211 days
1991	April 1	October 30	213 days
1992	April 4	October 8	188 days
1993	April 9	October 30	204 days
1994	April 12	November 16	218 days
1995	April 24	November 3	192 days
1996	April 6	October 22	199 days
1997	April 15	October 27	197 days
1998	March 21	November 11	236 days
1999	April 17	November 3	201 days
2000	April 5	November 7	207 days
2001	March 28	October 16	202 days
2002	March 27	November 19	241 days
2003	April 10	November 19	222 days
2004	April 14	November 3	203 days
2005	March 28	November 14	230 days
2006	March 24	November 2	223 days
2007	April 9	November 7	212 days
2008	April 18	October 23	198 days
2009	April 7	October 27	202 days
2010	April 9	October 29	206 days
AVERAGE	**April 17**	**November 21**	**217 days**

Dawson County 77-Year Rainfall Record* 1932-2009

YEAR	ANNUAL	YEAR	ANNUAL	YEAR	ANNUAL	YEAR	ANNUAL
1932	33.36	1939	13.73	1946	9.93	1953	8.08
1933	12.28	1940	12.46	1947	13.48	1954	14.32
1934	8.91	1941	39.07	1948	12.5	1955	18.98
1935	27.62	1942	19.83	1949	18.9	1956	7.06
1936	19.66	1943	13.42	1950	17.8	1957	20.86
1937	19.7	1944	21.12	1951	9.8	1958	17.23
1938	15.81	1945	18.24	1952	9.63	1959	19.36

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1960	1.00	.76	.15	.30	1.20	.15	3.91	.64	.30	4.44	0	1.48	14.33
1961	1.61	.40	1.30	0	.64	2.58	3.79	.65	1.25	.47	.87	.26	13.82
1962	T	0	.05	1.46	.21	2.40	1.58	.60	4.86	1.69	.24	.59	13.64
1963	.02	.21	0	.39	5.22	4.41	1.21	.69	4.31	2.98	.74	.46	29.64
1964	.80	.31	.46	0	1.90	1.67	.29	.99	2.58	.81	.30	.23	10.34
1965	.26	T	.06	1.30	1.82	1.77	.35	1.26	.55	0	0	.21	7.58
1966	.60	.10	.75	2.55	1.07	2.59	.83	4.21	3.67	0	0	.03	16.40
1967	0	.02	1.26	.25	.01	5.69	3.09	0	1.09	.53	.77	.75	13.46
1968	1.68	1.20	3.39	1.54	1.02	2.04	1.28	2.99	.52	.16	2.67	.28	18.77
1969	.27	.98	1.74	1.82	7.65	2.50	2.22	.47	5.66	3.95	1.34	.20	28.80
1970	T	.07	3.12	.20	1.52	1.95	.22	.26	3.08	2.54	0	.15	13.11
1971	0	0	0	1.01	2.02	2.45	2.41	4.80	4.20	.79	.06	.23	17.97
1972	.25	0	.15	.10	2.67	.90	4.96	6.06	1.18	3.47	.57	0	20.31
1973	2.55	1.11	1.64	.70	1.46	1.51	4.40	1.01	2.06	1.25	.02	0	17.71
1974	.08	.02	.54	.72	.50	.11	.35	3.18	6.83	5.73	.52	.17	18.75
1975	.50	2.32	0	.41	3.22	4.49	4.67	.80	4.17	.10	1.10	.38	22.16
1976	T	.03	.06	4.24	1.47	1.31	7.92	.92	4.80	2.45	.55	.48	24.23
1977	.94	.25	.84	1.27	1.45	4.09	.65	2.34	.03	.74	T	.03	12.63
1978	.42	.59	.75	.54	4.10	2.93	.13	1.03	5.81	1.78	1.32	.03	19.43
1979	.72	.37	.69	.30	1.35	5.32	3.63	2.77	0	T	.45	2.25	17.85
1980	.61	.18	.01	.82	3.33	1.68	.09	2.10	9.00	.02	1.15	1.16	20.15
1981	.27	1.65	.34	2.29	1.24	2.48	1.66	4.12	4.33	4.36	.13	.36	23.23
1982	.68	.38	1.03	.85	2.98	4.17	1.46	.09	.99	.60	1.01	1.68	15.92
1983	2.43	.08	.49	1.14	.55	.04	0	.42	.38	5.83	1.74	.51	13.60
1984	.24	T	.05	T	1.05	5.30	4.65	5.24	1.38	4.35	2.50	1.61	26.37
1985	.34	.44	1.14	2.32	4.28	3.56	1.12	.14	2.37	7.89	.4	.05	23.79
1986	T	.29	.33	.46	2.60	6.69	1.38	1.70	7.11	2.38	1.99	5.53	27.46
1987	.20	2.51	.20	.13	8.53	3.00	1.08	2.35	5.18	.17	.08	.29	23.72
1988	.12	1.02	.85	1.36	2.87	1.95	6.55	1.33	6.76	0	.01	.32	23.14
1989	.43	1.09	.12	.49	2.05	3.26	.79	1.34	4.57	.10	T	.27	14.51
1990	.23	2.22	2.06	2.18	.56	2.00	1.58	3.80	4.67	1.31	1.48	.75	22.84
1991	1.75	.24	1.18	0	1.36	1.41	4.97	2.57	5.87	.67	2.62	4.34	26.98
1992	1.67	2.41	1.55	.71	6.17	5.60	1.59	2.64	2.28	T	2.02	.26	26.90
1993	1.09	2.49	.91	1.46	4.39	1.54	1.30	2.05	.74	1.15	1.10	.68	18.90
1994	.33	.15	.02	.73	3.20	.75	1.73	0	6.81	.85	1.14	.43	15.42
1995	.64	.47	.07	.98	3.92	3.21	.27	1.71	5.09	.75	.16	.01	17.28
1996	.15	0	.05	.56	.16	1.81	1.25	2.76	1.88	.41	1.0	.01	10.04
1997	.03	1.87	0	1.41	1.38	3.12	2.33	2.50	2.33	.93	.28	2.36	18.54
1998	.28	.91	1.98	.007	.31	1.84	.56	1.47	.64	.79	.89	.44	10.12
1999	.43	0	2.24	.37	2.79	5.46	1.33	1.15	.27	.21	0	.07	14.30
2000	.23	.15	1.34	.13	.73	5.02	.08	.12	0	5.39	1.73	.62	15.54
2001	1.06	.5	1.46	.08	1.95	1.17	0	.84	1.61	.24	1.25	.03	10.19
2002	.75	.96	3.29	.98	.65	1.01	2.59	.24	.71	4.41	.40	1.57	17.56
2003	0	.43	.64	.16	2.79	4.78	.02	.50	.98	.46	.36	0	11.12
2004	.98	1.33	1.57	1.55	.19	3.72	2.56	1.65	4.81	4.74	5.96	.63	29.69
2005	.53	.87	.51	.19	1.47	2.1	2.64	2.03	0	3.68	0	.05	14.07
2006	.04	.22	1.25	1.28	1.16	.43	.19	3.05	4.03	4.11	.15	1.43	17.34
2007	1.37	.20	2.52	2.68	6.37	3.77	2.63	1.02	4.18	0	.75	.65	26.14
2008	0	.01	1.18	2	2.51	2.73	.08	3.5	6.4	2.98	0	.3	21.69
2009	0	.50	.21	1.39	2.36	1.85	4.65	.07	2.56	.88	.05	1.26	15.78
2010	1.43	1.97	2.03	3.39	.22	1.81	5.36	.09	4.49	.52	0	.06	
AVG	**0.62**	**0.67**	**0.67**	**0.976**	**2.29**	**2.73**	**1.98**	**1.76**	**3.1**	**1.95**	**0.87**	**0.72**	**18.47**

*From Lamesa Reporting Station

DAWSON COUNTY FIRST BALE WINNERS
1947-2010

PRODUCER	DATE
Glenn Allen, Jr.	August 29, 1947
P.A. Robinett	September 13, 1948
E.L. Beckmeyer	August 18, 1949
Jack Grigg	August 24, 1950
Allen J. Adams	August 18, 1951
George Barkowsky	August 18, 1952
Frank Barkowsky	August 25, 1953
F.M. McLendon & Art Ayres	August 12, 1954
C.T. McKeown	August 25, 1955
R.L. Holder	August 11, 1956
S.R. Barron	August 31, 1957
E.E. Stringer	August 18, 1958
A.G. Limmer	August 20, 1959
Richard Woodward	August 26, 1960
W.G. Bennett	August 16, 1961
C.R. Foster	August 10, 1962
R.D. Gibson	August 15, 1963
Leo Burkett	August 08, 1964
J.W. Dennis	August 26, 1965
Lewis Wise	September 07, 1966
Henry Vogler	August 28, 1967
Delmar Moore	August 27, 1968
Jack Grigg	August 19, 1969
W.G. "Bill" Bennett	August 27, 1970
Carl Garrett	September 03, 1971
Charlie King	September 07, 1972
Earl Hatchett	September 01, 1973
George Lopez	August 22, 1974
Bud Hale	September 15, 1975
Gonzell Hogg	September 18, 1976
Leroy Holladay	August 15, 1977
Marshall Cohorn	August 28, 1978
Bob Hawkins	September 08, 1979
Gonzell Hogg	September 08, 1980
Craig Woodward	August 28, 1981
Andy Bratcher	September 14, 1982
Charlie King, Jr.	September 03, 1983
Ronnie Meador	September 18, 1984
Bob Kilgore	August 27, 1985
Glen Phipps	September 24, 1986
Lewis Wise	September 26, 1987
R ocky Free	September 09, 1988
Carroll Bennett	September 04, 1989
Wade Bennett	August 27, 1990
Johnny Todd	September 04, 1991
Wade Bennett	September 14, 1992
Bob Kilgore	August 18, 1993
E. Lee Harris	August 28, 1994
Lloyd Cline	September 02, 1995
Donald Vogler	September 16, 1996
Brent Hendon	September 3, 1997
Tommy Merritt	September 6, 1998
Foy O'Brien	August 23, 1999
Theresa Estes	September 7, 2000
Kent Youngood	August 23, 2001
Johnny Montgomery	August 31, 2002
Lonnie Wright	September 9, 2003
Lonnie Wright	September 7, 2004
Theresa Estes	October 4, 2005
Benny & Kay White	September 30, 2006
Ricky Schneider	October 8, 2007
Benny & Kay White	October 20, 2008
Benny & Kay White	October 7, 2009
Craig Forbis	September 29, 2010

COTTON PRODUCTION - 72 YEAR RECORD*

YEAR	PRODUCTION BALES	ACRES	YEAR	PRODUCTION BALES	ACRES
1939	41,500	94,100	1975	123,400	237,600
1940	39,100	127,400	1976	244,200	271,400
1941	57,900	130,200	1977	230,000	290,000
1942	74,260	126,000	1978	92,000	271,000
1943	51,950	129,000	1979	243,800	275,000
1944	55,800	121,000	1980	88,000	293,900
1945	7,150	44,800	1981	270,600	316,500
1946	27,100	111,000	1982	153,400	251,200
1947	102,000	266,000	1983	57,800	103,400
1948	60,400	267,000	1984	129,900	225,500
1949	193,000	318,000	1985	147,200	220,000
1950	96,000	225,000	1986	39,000	220,700
1951	67,000	319,000	1987	120,000	227,000
1952	50,000	361,000	1988	204,168	245,244
1953	12,300	45,000	1989	85,515	199,750
1954	81,164	213,000	1990	220,800	221,500
1955	85,000	185,000	1991	99,300	153,500
1956	82,057	202,000	1992	156,800	178,800
1957	129,000	201,000	1993	226,500	237,062
1958	143,000	202,000	1994	140,100	221,900
1959	152,767	192,084	1995	171,700	266,900
1960	176,756	205,073	1996	108,100	112,500
1961	213,217	221,393	1997	213,900	251,800
1962	145,648	212,330	1998	80,800	86,500
1963	160,483	196,489	1999	209,100	258,900
1964	93,944	156,000	2000	81,500	102,700
1965	153,000	186,354	2001	82,000	84,500
1966	130,000	196,009	2002	190,000	216,500
1967	76,317	113,553	2003	191,500	238,000
1968	182,096	168,554	2004	330,200	251,700
1969	140,159	214,138	2005	400,000	293,500
1970	169,300	221,700	2006	161,000	297,500
1971	169,300	221,700	2007	393,000	275,600
1972	234,400	215,200	2008	144,500	114,250
1973	315,300	268,500	2009	238,207	264,674
1974	38,800	72,900	2010	378,624	315,520

* 72 Year Average: **Production Bales**: 146,652 / **Acres**: 206,132 / **Yield per acre**: 355 lbs.

SOME FACTS ABOUT DAWSON COUNTY

The land area in Dawson County is 577,920 acres.

There are 368,959 acres in crop land, 104,498 acres in the Conservation Reserve Program, 87,207 acres in rangeland and pasture and 17,256 acres in roads, town sites, etc.

The county has approximately 650 center pivot systems and 75,000 total irrigated acres.

Projected estimated gross agricultural income for 2010 is $162,728,000.

The county should produce around 378,624 bales of cotton for 2010.

ESTIMATED CROP ACREAGE FOR 2010	HARVESTED ACRES
Cotton – Irrigated	75,000
Cotton – Dryland	250,000
Grain Sorghum - Irrigated & Dryland	20,000
Peanut - Irrigated	1,000
Haygrazer	5,700
Wheat - Irrigated & Dryland	2000
Alfalfa - Irrigated	1600
Grapes - Irrigated	111