2011 Annual Report

AGRICULTURAL COMPLEX for ADVANCED RESEARCH and EXTENSION SYSTEMS

(AG-CARES)

Lamesa Cotton Growers

IN COOPERATION WITH

Texas AgriLife Extension Service

Texas AgriLife Research

Technical Report 12-1

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Texas AgriLife and Research and Extension Center of Lubbock
1102 E. FM 1294
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Results from the 2011 growing season at AG-CARES verified how large a role rainfall plays for both irrigated and dryland for crop production in the Southern High Plains. Dryland production was a complete failure and we, as many producers, with pivot irrigation found we were unable to meet crop water needs as the growing season progressed. Likewise subsurface drip irrigation was quite a struggle. Fortunately we achieved an adequate stand in some of the drip irrigated area. Yields across all studies were far below the norm and irrigation applications were above average. It was necessary to re-nozzle our pivot sprinkler package several times in the season due to a declining water availability. Needless to say, we hope that 2011 rainfall, or lack thereof, will be a record low that is not broken in the years to come.
Some of the key findings at AG-CARES for 2010 were:

- Established a baseline for cotton production when rainfall is 2.5 inches during the growing season. Average yield was 350-600 lbs./A with 18 inches of irrigation water applied.
- Rootknot nematode pressure remained high so variety evaluations were successful. Nematode tolerant varieties had significant yield increases (up to 30%) compared to non-tolerant lines and they also reduced nematode populations for the coming season.
- Concentrating irrigation water on fewer acres increased yields and net returns. This has not been seen in previous years with normal rainfall.

Dr. Mark Kelley was hired as the Lubbock Center's Extension Cotton Specialist replacing Dr. Randy Boman who accepted a position with Oklahoma State at Altus. Dr. David Kerns, Extension Cotton Specialist at our Center has accepted a position with LSU at the Winnsboro, LA Station and a search for his replacement is now underway. While both AgriLife Research and Extension agencies suffered budget reductions of 19%, we remain committed to addressing the needs of the Southern High Plains.

Our partnership with Lamesa Cotton Growers to operate AG-CARES continues to be a valuable commitment to producers south of Lubbock to the Big Spring area. This location provides research and demonstration results on both irrigated and dryland cotton production management practices as well as serving as focus point to demonstrate to our legislators how producers and our agencies leverage resources to benefit the region. Our thanks go Shawn Holliday, current president of Lamesa Cotton Growers, Vice President Shawn Holliday and Secretary Johnny Ray Todd who provide continuing leadership. Our AgriLife coordinator, Dr. Wayne Keeling, site manager, Dr. Danny Carmichael, and IPM agent, Tommy Doederlein, all have a long history of service to the site.

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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2011

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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, 2011.

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 3
Varieties:	Americot 1532B2RF
	Deltapine 0935B2RF
	FiberMax 9160B2F
	Stoneville 5458B2RF
Herbicides:	Prowl 3 pt/A PPI
	Roundup PowerMax 32 oz/A POST (Terminate Rye Cover)
	Roundup PowerMax 32 oz/A POST + Dual 1.3 pt/A (June 10)
	Roundup PowerMax 28 oz/A POST (July 15)
	Roundup PowerMax 22 oz/A POST (August 23)
Insecticide:	Temik 3.5 lbs/A at planting
	Intruder 1 oz/A (August 26)
Fertilizer:	100-35-0
Irrigation in-season:	

	Low	Base	High
Total	6.6”	9.9”	13.2”

Harvest Date: November 10

RESULTS AND DISCUSSION:

Four varieties were grown under three irrigation levels in continuous cotton production. Lack of rainfall and record heat resulted in continuous irrigation during the growing season and disappointing yields. When averaged across irrigation levels, similar yields were produced with AM 1532B2RF, DP 0935B2RF, and ST 5458B2RF (Table 1). Compared to the base irrigation (9.9” applied in-season), yields were reduced 62% with the low irrigation (-33%) and increased 54% with the high irrigation treatment (+33%). Lint value was reduced with the low irrigation treatment (Table 2). Gross revenues increased with increasing irrigation level and varied between varieties (Table 3). Within an irrigation treatment, no difference in varieties was observed for lint yield, lint value, or gross revenues. These results indicate that during the extreme conditions of 2011, concentrating available irrigation water in few acres would have been more profitable. This has not been the case in previous years with more normal rainfall.

Table 1. Effects of B2RF variety and LEPA irrigation levels on cotton lint yields at AG-CARES, Lamesa, TX, 2011.

Variety	Low	Base	High	Avg.
	——————————————lbs/A——————————————			
AM 1532B2RF	114 a	311 a	532 a	319 AB
DP 0935B2RF	138 a	382 a	488 a	336 A
FM 9160B2F	100 a	262 a	413 a	259 B
ST 5458B2RF	124 a	314 a	461 a	300 AB
Avg.	119 C	317 B	474 A	
% change	(-62%)	(——)	(+50%)	

Table 2. Effects of B2RF variety and LEPA irrigation levels on lint value at AG-CARES, Lamesa, TX, 2011.

	Low	Base	High	Avg.
Variety	——————————————¢/lb——————————————			
AM 1532B2RF	48.62 a	49.62 b	53.43 a	50.56 B
DP 0935B2RF	48.38 a	49.75 b	51.93 ab	50.02 B
FM 9160B2F	50.18 a	52.98 a	54.77 a	52.64 A
ST 5458B2RF	48.83 a	50.23 b	50.12 b	49.73 B
Avg.	49.00 B	50.65 B	52.56 A	

Table 3. Effects of B2RF variety and LEPA irrigation levels on gross revenues at AG-CARES, Lamesa, TX, 2011.

	Low	Base	High	Avg.
Variety	——————————————$/A——————————————			
AM 1532B2RF	56 a	154 a	284 a	165 A
DP 0935B2RF	67 a	190 a	253 a	170 A
FM 9160B2F	51 a	138 a	227 a	139 A
ST 5458B2RF	61 a	156 a	231 a	149 A
Avg.	59 C	160 B	249 A	
% change	(-63%)	(——)	(+56%)	

TITLE:

Cotton Variety Performance **(Sorghum-Cotton Rotation)** as Affected by Low-Energy Precision Application (LEPA) Irrigation Levels at AG-CARES, Lamesa, TX, 2011.

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 3
Varieties:	Americot 1532B2RF
	Deltapine 0935B2RF
	FiberMax 9160B2F
	Stoneville 5458B2RF
Herbicides:	Prowl 3 pt/A PPI
	Roundup PowerMax 32 oz/A POST (May 11)
	Roundup PowerMax 32 oz/A POST + Dual 1.3 pt/A (June 10)
	Roundup PowerMax 28 oz/A POST (July 15)
	Roundup PowerMax 22 oz/A POST (August 23)
Insecticide:	Temik 3.5 lbs/A at planting
	Intruder 1 oz/A (August 26)
Fertilizer:	100-35-0
Irrigation in-season:	

	Low	Base	High
Total	6.4”	9.5”	12.6”

Harvest Date:	November 9

RESULTS AND DISCUSSION:

In this trial, four varieties were grown under three irrigation levels following sorghum grown in 2010. Sorghum stalks were left standing until 2 weeks before planting when a double-cut stalk cutter was used. No other tillage was performed before cotton planting. As in the continuous cotton study, disappointing yields were produced in spite of significant irrigation. The three varieties that produced highest yield in the continuous cotton study were also highest in this study (Table 1). Lint value increased with increased irrigation level and was highest with FM 9160B2F. Lint yields and gross revenues increased with increased irrigation, but were not different between varieties at each irrigation level. Little yield difference was observed with the sorghum-cotton rotation compared to continuous cotton in 2011.

Table 1. Effects of B2RF variety and LEPA irrigation levels on cotton lint yields at AG-CARES, Lamesa, TX, 2011.

Variety	Low	Base	High	Avg.
		lbs/A		
AM 1532B2RF	111 a	291 a	539 a	314 AB
DP 0935B2RF	139 a	381 a	511 a	344 A
FM 9160B2F	97 a	253 a	390 a	247 B
ST 5458B2RF	117 a	297 a	445 a	286 AB
Avg.	116 C	305 B	471 A	
% change	(-62%)	(——)	(+54%)	

Table 2. Effects of B2RF variety and LEPA irrigation levels on lint value at AG-CARES, Lamesa, TX, 2011.

Variety	Low	Base	High	Avg.
		¢/lb		
AM 1532B2RF	48.40 a	51.60 ab	53.12 a	51.04 AB
ST 5458B2RF	50.00 a	51.58 ab	51.42 a	51.00 AB
FM 9160B2F	49.45 a	53.57 a	53.57 a	52.19 A
DP 0935B2RF	48.85 a	51.30 b	51.08 a	50.41 B
Avg.	49.18 B	52.01 A	52.30 A	

Table 3. Effects of B2RF variety and LEPA irrigation levels on gross revenues at AG-CARES, Lamesa, TX, 2011.

Variety	Low	Base	High	Avg.
		$/A		
AM 1532B2RF	54 a	151 a	287 a	164 AB
ST 5458B2RF	69 a	196 a	261 a	175 A
FM 9160B2F	48 a	136 a	209 a	131 B
DP 0935B2RF	57 a	152 a	227 a	146 AB
Avg.	57 C	159 B	246 A	
% change	(-64%)	(——)	(+55%)	

TITLE:

Replicated Minimum Till LEPA Irrigated RACE Cotton Variety Demonstration, AG-CARES, Lamesa, TX, 2011.

AUTHORS:

Mark Kelley, Chris Ashbrook, and Tommy Doederlein; Extension Agronomist-Cotton, Extension Assistant-Cotton, and EA-IPM Dawson/Lynn Counties

MATERIALS AND METHODS:

Varieties:	All-Tex Dinero B2RF, Croplan Genetics 3787B2RF, Deltapine 1032B2RF, Dyna-Gro 2570B2RF, FiberMax 2484B2F, NexGen 4012B2RF, 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:	4-May.
Fertilization:	125 lbs/acre 10-34-0 were band applied preplant, and 30 lbs N/acre using UAN 32-0-0 were applied via fertigation on 22-November 2010 (for rye cover crop), 29-April, 3-July, and 14-July.
Weed management:	Prowl H2O was applied preplant incorporated at 3 pt/acre across all varieties. Roundup PowerMax was applied over-the-top at 32 oz/acre on 31-March (weed control and cover crop termination), at 22 oz/acre on 11-May, and 28 oz/acre on 15-July with AMS.
Irrigation	4.75" inches of irrigation were applied via LEPA irrigation preplant, with 13.32" applied during the growing season for a total of 18.07" of irrigation applied.
Rainfall:	April: 0.00" August: 0.00" May: 0.00" September: 0.83" June: 0.16" October: 0.33" July: 0.24" Total rainfall: 1.56"
Total irrigation and rainfall:	19.63"
Insecticides:	Temik was applied at 3.5 lb/acre. One application of Intruder was sprayed by airplane on 26-August at 1 oz/acre. 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 32 oz/acre Prep + 2.0 oz/acre ET with 1% v/v crop oil on 5-October followed by 24 oz/acre Gramoxone Inteon with 0.25% v/v NIS on 20-October.
Harvest:	Plots were harvested on 13-October using a commercial John Deere 7445 stripper 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 $300/ton. Ginning costs did not include checkoff.

Seed and technology fees: basis using the Plains Cotton Growers Seed Cost Calculator based on 4.1 seeds/row-ft.

RESULTS AND DISCUSSION:

This location was planted flat into a terminated rye cover crop following cotton. Due to the extreme drought conditions, stand establishment was variable across all varieties. It was determined due to this variability in stand, that only yield and fiber quality data would be collected.

Significant differences were noted for some yield and economic parameters (Table 1). Most differences were significant at the 0.10 level with the exception of lint turnout (significant at 0.05 level). Stripper harvested lint turnout ranged from 28.9% for Croplan Genetics 3787B2RF to 34.1% for Deltapine 1032B2RF. Differences in bur cotton yield were significant and the test average was 988 lb/acre with a low of 700 lb/acre (NexGen 4012B2RF) and a high of 1205 lb/acre (Stoneville 5458B2RF). Lint yields ranged from a low of 226 lb/acre (NexGen 4012B2RF) to a high of 401 lb/acre (Stoneville 5458B2RF). Lint loan values ranged from a low of $0.4898/lb to a high of $0.5250/lb for PhytoGen 367WRF and NexGen 4012B2RF, respectively. Lint value averaged $158.28/acre with a low of $118.43/acre (NexGen 4012B2RF) and a high of $198.30/acre (Stoneville 5458B2RF). When subtracting ginning and seed and technology costs, the net value/acre averaged $134.00, and no significant differences were observed among varieties.

Significant differences were observed for all fiber quality parameters at this location with the exception of leaf (Table 2). Of these differences, all but one (uniformity) were significant at the 0.05 level. Micronaire values ranged from a low of 3.5 for Croplan Genetics 3787B2RF to a high of 4.5 for Dyna-Gro 2570B2RF. Staple averaged 32.1 across all varieties with a low of 31.6 (PhytoGen 367WRF) and a high of 33.1 (NexGen 4012B2RF). Uniformity ranged from a low of 78.4% (All-Tex Dinero B2RF) to a high of 79.8% (Dyna-Gro 2570B2RF). Strength ranged from a low of 25.9 g/tex for Deltapine 1032B2RF to a high of 28.8 g/tex for FiberMax 2484B2F. Significant differences were observed among varieties for percent elongation (8.3 avg), Rd or reflectance (77.8 avg), and +b or yellowness (9.5 avg).

Although differences in net values were not significant in this trial previous data indicate that substantial differences can be obtained in terms of net value/acre due to variety selection. It should be noted that due to the 2011 drought, stand variability was higher and yields much lower than would normally be observed. 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 and Michael Petty for their 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:

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Table 1. Harvest results from the Dawson County LEPA irrigated RACE variety demonstration, AG-CARES Research Farm, Lamesa, TX, 2011.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value
	-------- % --------		---------- lb/acre ----------			$/lb	---------- $/acre ----------					
Stoneville 5458B2RF	33.2	48.3	1205	401	583	0.4950	198.30	87.39	285.69	36.15	74.38	175.00
Dyna-Gro 2570B2RF	33.8	51.8	1120	378	580	0.5120	193.77	87.02	280.78	33.60	72.49	175.00
PhytoGen 367WRF	31.5	52.2	1181	373	617	0.4898	182.51	92.55	275.06	35.44	73.63	166.00
Croplan Genetics 3787B2RF	28.9	53.7	1145	331	616	0.4917	162.58	92.33	254.90	34.36	70.90	150.00
Deltapine 1032B2RF	34.1	52.4	904	308	473	0.4937	152.20	71.01	223.21	27.11	75.18	121.00
FiberMax 2484B2F	32.4	53.4	851	275	455	0.4988	137.41	68.19	205.60	25.54	74.38	106.00
All-Tex Dinero B2RF	30.6	53.6	795	243	426	0.4978	121.01	63.92	184.93	23.86	69.39	92.00
NexGen 4012B2RF	32.2	52.8	700	226	369	0.5250	118.43	55.36	173.79	20.99	65.44	87.00
Test average	32.1	52.3	988	317	515	0.5005	158.28	77.22	235.49	29.63	71.98	134.00
CV, %	5.7	4.0	21.8	22.4	22.0	2.6	22.7	22.0	22.4	21.8	--	34.6
OSL	0.0495	0.1129	0.0675†	0.0662†	0.1073	0.0711†	0.0873†	0.1068	0.1073	0.0676†	--	0.1443
LSD	3.2	NS	310	102	NS	0.0191	51.61	NS	NS	9.31	--	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, †indicates significance at the 0.10 level, NS - not significant.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$300/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 2. HVI fiber property results from the Dawson County LEPA irrigated RACE variety demonstration, AG-CARES Research Farm, Lamesa, TX, 2011.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Stoneville 5458B2RF	4.3	31.9	79.1	28.3	9.4	1.3	76.5	10.0	2.0	2.0
Dyna-Gro 2570B2RF	4.5	32.4	79.8	27.7	9.5	1.0	77.6	9.8	2.0	1.3
PhytoGen 367WRF	4.4	31.6	78.7	26.9	8.3	2.0	76.5	9.7	2.3	1.7
Croplan Genetics 3787B2RF	3.5	32.1	79.0	27.1	7.0	1.3	78.4	9.2	2.0	1.0
Deltapine 1032B2RF	4.2	32.2	78.5	25.9	7.8	1.0	78.3	9.2	2.0	1.0
FiberMax 2484B2F	4.4	31.8	79.3	28.8	9.6	1.7	77.2	9.9	2.0	1.7
All-Tex Dinero B2RF	4.1	31.8	78.4	26.3	7.7	1.7	78.2	9.0	2.3	1.0
NexGen 4012B2RF	4.3	33.1	78.9	27.3	7.4	1.3	79.5	8.8	2.0	1.0
Test average	4.2	32.1	79.0	27.3	8.3	1.4	77.8	9.5	2.1	1.3
CV, %	5.0	1.5	0.6	2.3	4.5	42.2	1.3	2.1	--	--
OSL	0.0020	0.0398	0.0512†	0.0010	<0.0001	0.4706	0.0256	<0.0001	--	--
LSD	0.4	0.8	0.7	1.1	0.7	NS	1.7	0.3	--	--

CV - coefficient of variation.

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

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

TITLE:

Bayer Cotton Agronomic Performance Trial at AG-CARES, Lamesa, TX, 2011.

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 4
Varieties:	BX 1264B2F
	FiberMax 2484B2F
	Stoneville 5458B2RF
	FiberMax 9170B2F
	FiberMax 2989GLB2
Herbicides:	Prowl 3 pt/A PPI
	Roundup PowerMax 32 oz/A POST (Terminate Rye Cover)
	Roundup PowerMax 22 oz/A POST (May 11)
	Roundup PowerMax 32 oz/A POST + Dual 1.3 pt/A (June 10)
	Roundup PowerMax 28 oz/A POST (July 15)
Insecticide:	Temik 3.5 lbs/A at planting
	Intruder 1 oz/A (August 26)
Fertilizer:	100-35-0
Irrigation in-season:	

	Low	Base	High
Total	6.7”	10.0”	13.3”

Harvest Date: November 11

RESULTS AND DISCUSSION:

Five varieties, including 1 Stoneville, 3 commercial, and 1 experimental FiberMax varieties were grown under three irrigation levels including base (10.0” applied in-season), low (-33%), and high (+33%). When averaged across varieties, yields were reduced 51% in the low irrigation treatment, and increased 41% in the high treatment compared to the base irrigation (Table 1). When averaged across irrigation levels, higher yields were produced with ST 5458B2RF and BX 1264B2F. Lint values trended higher as irrigation level increased, due to improved staple lengths (Table 2). Higher gross revenue resulted with ST 5458B2RF and BX 1264B2F. Although ST 5458B2RF had the lowest lint values, this variety produced the highest yield and gross revenues of the four commercial varieties.

Table 1. Effects of B2RF variety and LEPA irrigation levels on cotton lint yields at AG-CARES, Lamesa, TX, 2011.

	Irrigation Level				
Variety	Dryland	Low	Base	High	Irrig. Avg.
			lbs/A		
BX 1264B2F		192	393	549	378 AB
FM 2484B2F		135	328	463	309 C
ST 5458B2RF		239	393	627	419 A
FM 9170B2F		149	365	452	322 BC
FM 2989GLB2		159	297	415	290 C
Avg.		175 c	355 B	501 A	
% change		(-51%)	(——)	(+41%)	

Table 2. Effects of B2RF variety and LEPA irrigation levels on lint value at AG-CARES, Lamesa, TX, 2011.

Variety	Dryland	Low	Base	High	Irrig. Avg.
			¢/lb		
BX 1264B2F		55.23	52.37	55.43	54.34 A
FM 2484B2F		52.98	53.08	54.65	53.57 AB
ST 5458B2RF		50.80	53.17	51.70	51.89 B
FM 9170B2F		50.73	52.60	56.15	53.16 AB
FM 2989GLB2		52.88	52.97	56.18	54.01 A
Avg.		52.53 A	52.84 A	54.82 A	

Table 3. Effects of B2RF variety and LEPA irrigation levels on gross revenues at AG-CARES, Lamesa, TX, 2011.

Variety	Dryland	Low	Base	High	Irrig. Avg.
			$/A		
BX 1264B2F		106	206	304	205 AB
FM 2484B2F		72	175	254	167 C
ST 5458B2RF		120	210	324	218 A
FM 9170B2F		76	192	254	174 BC
FM 2989GLB2		84	157	233	158 C
Avg.		92 C	188 B	274 A	
% change		(-51%)	(——)	(+45%)	

TITLE:

Lint Yield, Fiber Quality, and Water-Use Efficiency as Influenced by Cultivar and Irrigation Level at AG-CARES, Lamesa, TX, 2011.

AUTHORS:

Justin Cave, Wayne Keeling, Jim Bordovsky, and Jacob Reed; Graduate Student, Professor, Agricultural Engineer-Irrigation, and Sr. Research Associate.

MATERIALS AND METHODS:

Plot Size:	4 rows by 95 feet, 3 replications
Planting Date:	May 27
Varieties:	11R110B2R2
	11R112B2R2
	11R159B2R2
	10R011B2R2
	10R013B2R2
	DP 1032 B2RF
	DP 1044 B2RF
	DP 0912 B2RF
Herbicides:	Prowl 3 pt/A PPI
	Roundup PowerMax 32 oz/A POST (July 19)
Insecticide:	Temik 3.5 lbs/A at planting
	Intruder 1 oz/A (August 26)
Fertilizer:	100-35-0
Irrigation in-season:	

	Low	Base	High
Total	7.9”	10.4”	13.0”

Harvest Date: November 10

RESULTS AND DISCUSSION:

Three commercial and five experimental Deltapine varieties were planted under three irrigation levels. Average yields ranged from 317 lbs/A with low irrigation to 1022 lbs/A with the high irrigation level (Table 1). When averaged across irrigation levels, lint yields ranged from 570-705 lbs/A with the eight cultivars. Lint values averaged across varieties were similar at the low and base levels, but increased at the high irrigation level. Differences in loan values among cultivars existed at the low and base irrigation levels, but not at the high level (Table 2). Gross revenues increased with increasing irrigations and did not differ between most cultivars (Table 3).

Table 1. Effects of B2RF variety and LEPA irrigation levels on cotton lint yields at AG-CARES, Lamesa, TX, 2011.

Variety	Low	Base	High	Avg.
	lbs/A			
11R110B2R2	328 ab	709 a	1005 a	681 A
11R112B2R2	272 b	653 abc	1103 a	676 AB
11R159B2R2	345 ab	672 ab	1032 a	683 A
10R011B2R2	406 a	688 ab	1020 a	705 A
10R013B2R2	303 ab	593 abc	1010 a	632 AB
DP 1032 B2RF	294 b	568 bc	966 a	609 AB
DP 1044 B2RF	341 ab	649 abc	1095 a	695 A
DP 0912 B2RF	245 b	522 bc	944 a	570 B
Avg.	317 C	630 B	1022 A	
% change	(-50%)	(——)	(+62%)	

Table 2. Effects of B2RF variety and LEPA irrigation levels on lint value at AG-CARES, Lamesa, TX, 2011.

	Low	Base	High	Avg.
Variety	¢/lb			
11R110B2R2	48.40 cd	51.70 a	52.87 a	50.99 CD
11R112B2R2	49.40 cd	50.60 ab	52.37 a	50.79 CD
11R159B2R2	50.43 bc	52.67 a	52.93 a	52.01 ABC
10R011B2R2	52.93 a	52.00 a	54.87 a	53.27 A
10R013B2R2	50.27 bc	51.80 a	53.30 a	51.79 BCD
DP 1032 B2RF	52.63 ab	52.00 a	55.00 a	53.21 AB
DP 1044 B2RF	49.40 cd	48.57 bc	53.53 a	50.50 D
DP 0912 B2RF	47.43 d	47.03 c	48.23 b	47.57 E
Avg.	50.11 B	50.80 B	52.89 A	

Table 3. Effects of B2RF variety and LEPA irrigation levels on gross revenues at AG-CARES, Lamesa, TX, 2011.

	Low	Base	High	Avg.
Variety	$/A			
11R110B2R2	159 abc	367 a	530 a	352 A
11R112B2R2	134 bc	331 a	580 a	348 A
11R159B2R2	174 ab	353 a	546 a	358 A
10R011B2R2	215 a	359 a	561 a	378 A
10R013B2R2	152 bc	302 ab	539 a	331 AB
DP 1032 B2RF	155 bc	295 ab	533 a	328 AB
DP 1044 B2RF	168 abc	315 ab	586 a	356 A
DP 0912 B2RF	116 c	245 b	456 a	272 B
Avg.	159 C	321 B	541 A	
% change	(-51%)	(——)	(+69%)	

TITLE:

Effects of SDI Irrigation Level, Nitrogen Rate, and Harvesting Method on Cotton Yield and Fiber Quality at AG-CARES, Lamesa, TX, 2011.

AUTHORS:

Wayne Keeling, Jim Bordovsky, John Wanjura and Eric Hequet. Cooperating Institutions: Texas AgriLife Research, USDA-ARS and Texas Tech University.

MATERIALS AND METHODS:

Plot Size:	4 rows by 400 feet, 3 replications
Planting Date:	May 27, 52,000 seeds/A
Variety:	ST 5458B2RF
Herbicides:	Prowl 3 pt/A PPI
	Roundup PowerMax 32 oz/A POST (May 27)
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

Irrigation in-season:

	Low	High
Preplant/Germ.	5.9”	8.9”
In-Season	18.4”	27.3”
Total	24.3”	36.2”

Harvest Dates:	Picker – October 26
	Stripper – October 31

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. Although significant irrigation was applied preplant, surface soil remained dry in May due to no rainfall. The decision was made May 27 to “bust” beds down to moisture to try to establish a stand. This was mostly successful, with a few rows not achieving adequate stands. The SDI irrigation system ran almost continuously throughout the growing season and total irrigation applied for the two irrigation levels was 24.3 and 36.2 in/A.

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 929 and 952 lbs/A for the picker and stripper harvest methods, respectively (Table 1). Lint turnout was improved with picker harvesting. There was a trend toward higher yields with the higher irrigation treatment, but this difference was not significant (alpha=0.05). N application rate did not affect yield in either irrigation level or harvesting method. No differences in lint value or gross revenues were observed due to irrigation, N level, or harvesting method (Tables 2, 3). These gross revenues do not reflect harvest or ginning costs, which will be addressed in the economic analysis.

Table 1. Effects of SDI irrigation level, nitrogen rate, and harvesting method on cotton lint yield and turnout at AG-CARES 2011.

		Harvesting Method	
		Picker	Stripper
		——————————lbs/A——————————	
High Irrigation			
	High N (175)	938 a** (33.2)*	1052 a (31.8)
	Base N (125)	1058 a (33.7)	1069 a (31.9)
Low Irrigation			
	High N (125)	899 a (34.0)	874 a (33.3)
	Base N (100)	822 a (34.5)	812 a (33.0)
Avg.		929 A***	952 A
		(33.9) A	(32.5) B

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

Table 2. Effects of SDI irrigation level, nitrogen rate, and harvesting method on cotton lint value at AG-CARES 2011.

		Harvesting Method	
		Picker	Stripper
		——————————lbs/A——————————	
High Irrigation			
	High N (175)	54.56 a	55.25 a
	Base N (125)	55.29 a	54.00 a
Low Irrigation			
	High N (125)	53.95 a	53.88 a
	Base N (100)	53.04 a	53.75 a
Avg.		54.21 A	54.22 A

Table 3. Effects of SDI irrigation level, nitrogen rate, and harvesting method on gross revenues at AG-CARES 2011.

		Harvesting Method	
		Picker	Stripper
		——————————lbs/A——————————	
High Irrigation			
	High N (175)	514 a	581 a
	Base N (125)	588 a	584 a
Low Irrigation			
	High N (125)	485 a	471 a
	Base N (100)	437 a	439 a
Avg.		506 A	518 A

TITLE:

Results of the Root-Knot Nematode Cotton Variety Performance Test and Nursery at AG-CARES, Lamesa, TX, 2011.

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 Cotton Variety Trial
Planting Date:	June 1 (replant)
Design:	Randomized Complete Block with 4 replications
Plot Size:	2-row plots, 21 ft
Row Spacing:	40-in
Planting Pattern:	Solid
Herbicide:	Prowl @ 3 pt/A applied April 14
Fertilizer:	10-34-0 @ 125 lbs/A applied April 7
Irrigations:	13.62 acre-in. applied May-September
Insecticide:	Temik @ 3.5 lbs/A at planting
	Intruder @ 1.0 oz/A August 26 by airplane
Harvest Aids:	Prep @ 1qt/A + E. T. @ 2oz/A applied October 20
	E. T. @ 3 oz/A applied October 28
Harvest Date:	November 9

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.

Variety Test

Thirty-six 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. One experimental line was dropped from the analysis due to poor stands, leaving 35 varieties in the report. The highest-yielding variety was DP 1252 B2RF at 968 pounds of lint per acre. This variety allowed slightly lower levels of nematode reproduction than the test average (6752) at 4710 root-knot nematodes/500 cc soil (Table 1). A new GlyTol variety, FM 2011GT, allowed the lowest level of nematode reproduction (960 rkn/500cc soil) followed by GB-6-1-2 (1260), FM 9101GT (1500), All-Tex Nitro 44B2RF (1530) and DP 174RF (1620). GB-6-1-2 is an experimental line from Alois Bell's USDA program in College Station; while it and FM 9101GT show low levels of nematode reproduction, they did not yield as well. Test yield average was 524

pounds per acre with a coefficient of variation of 36.6 %. Emergence, moisture and growing conditions were extremely difficult in 2011, contributing to the relatively high coefficient of variation for the test. The top 2 varieties were significantly equal in yield, and the next 14 were not different than the second highest yielding variety (Table 1). Fiber quality results in Table 2 indicate the difficult moisture conditions with a test average fiber length of 1.07 in.

Root-knot Nematode Nursery

The nursery was planted in 1-row, 20 ft un-replicated plots. Two new F_2 populations were evaluated in 2011, and 22 individual plant selections were harvested to plant as $F_{2:3}$ progeny rows in 2012. Eighty-nine additional selections were harvested from F_4-F_6 progeny rows for advancement in the 2012 nursery. Two rows were selected for 2012 yield testing and one row was selected as a tolerant crossing source. Twenty-four plant selections and one row selected for yield-testing were not significantly different in nematode resistance from the resistant check, M-240. An additional 44 plant selections and two rows selected for yield-testing or source crossing were not significantly different from the partially resistant check, DP 174F. Despite very hot and dry conditions during 2011, the resistant, partially resistant and susceptible checks had statistical separation for root galls in the greenhouse screening. Because relatively few selections were made because of crop conditions, it is planned to advance all materials selected to the 2012 nursery.

Table 1. Yield and agronomic results of the pivot-irrigated root-knot nematode cotton variety trial conducted at AG-CARES farm, Lamesa, 2011

		Agronomic Properties								% Open			Root-knot
		% Turnout		% Lint		Boll	Seed	Lint	Seed per	Bolls	Storm		Nematode 500cm^3
Designation	Yield	Lint	Seed	Picked	Pulled	Size	Index	Index	Boll	10/7/2011	Resistance	Height	soil
Deltapine DP 1252 B2RF	968	26.7	43.2	39.8	29.9	4.3	9.0	6.4	26.6	63	4	27	4710
Monsanto 10R020B2R2	799	28.5	46.9	36.0	27.2	5.2	10.5	6.3	29.6	76	5	29	14100
Bayer CropScience BX 1252LLB2	692	25.8	45.0	34.2	25.3	4.0	9.8	5.5	25.1	83	5	24	6840
Deltapine DP 174 RF	669	28.7	42.8	39.6	29.6	4.3	8.8	6.3	26.6	76	6	27	1620
Stoneville ST 5458B2RF	637	27.6	46.1	36.1	28.0	4.3	9.8	6.0	26.2	78	6	25	8340
Deltapine DP 1212 B2RF	634	26.5	45.1	38.1	28.5	4.8	9.8	6.5	28.3	83	5	25	4290
FiberMax FM 2011GT	597	28.9	44.6	37.7	27.3	4.5	10.8	7.1	24.0	74	5	22	960
Deltapine DP 1032 B2RF	592	25.9	44.0	37.6	27.9	4.0	8.6	5.6	26.9	65	4	25	5100
Deltapine DP 1044 B2RF	569	26.7	43.9	36.8	28.3	4.2	8.8	5.5	27.6	66	5	24	1950
PhytoGen PHY 375 WRF	568	27.2	43.8	38.4	28.8	4.1	8.9	6.0	25.9	84	4	26	8580
FiberMax FM 2989GLB2	564	24.4	45.1	35.8	26.7	4.4	10.0	6.0	26.6	58	5	26	9390
Bayer CropScience BX 1262B2F	563	26.6	45.1	36.5	27.9	4.3	9.4	5.8	27.1	75	5	25	7440
PhytoGen PHY 367 WRF	563	24.8	42.9	38.7	28.3	3.5	8.5	5.8	23.5	78	5	24	3660
Bayer CropScience BX 1264B2F	556	27.2	47.3	34.5	25.9	4.6	10.3	6.0	26.5	74	6	25	10440
Stoneville ST 4288B2F	548	24.3	45.4	33.8	26.8	4.7	10.0	5.6	28.2	80	4	25	4320
NexGen NG4111 RF	542	24.4	39.6	38.3	28.0	4.3	9.7	6.5	25.6	73	6	29	18660
Stoneville ST 4145LLB2	515	23.8	45.5	33.3	24.7	3.7	9.3	5.1	24.3	85	5	24	7380
Bayer CropScience BX 1150B2F	512	23.8	47.2	36.1	27.3	4.5	9.3	5.5	29.2	79	4	26	3900
NexGen NG4012 B2RF	503	24.3	46.0	35.2	26.0	4.1	9.5	5.5	25.8	76	5	28	4650
PhytoGen PHY 565 WRF	497	25.2	44.4	37.4	27.8	3.9	9.3	6.0	24.6	64	4	25	17070
FiberMax FM 9103GT	493	26.0	45.9	34.2	26.0	4.6	10.0	5.7	27.5	76	5	25	8220
FiberMax FM 2484B2F	473	26.4	44.1	35.9	26.9	4.2	10.1	6.3	24.1	69	5	26	16590
GB-6-1-2	461	22.9	45.6	33.1	25.1	4.5	10.8	5.7	26.2	60	4	27	1260
Stoneville ST 5445LLB2	449	26.2	44.9	37.3	27.9	4.6	9.9	6.3	27.0	84	5	22	9030
Deltapine DP 1219 B2RF	443	27.6	44.6	38.4	29.5	3.8	8.7	5.7	25.9	64	5	25	10110
FiberMax FM 9250GL	425	24.7	47.3	35.2	26.1	5.7	10.9	6.4	31.4	63	5	25	4860
All-Tex Nitro 44 B2RF	420	23.4	46.3	37.1	28.0	3.9	11.3	7.2	20.1	68	4	21	1530
FiberMax FM 9058F	415	24.9	44.4	34.9	24.8	4.0	10.0	5.8	23.8	76	5	23	12120
PhytoGen PHY 499 WRF	382	28.3	43.1	40.1	30.4	4.1	8.9	6.3	25.6	75	4	25	2010
All-Tex ATX 10CR1064 B2RF	378	24.1	46.7	33.1	24.4	4.3	9.2	5.1	27.6	80	5	25	11700

Table 1. Yield and agronomic results of the pivot-irrigated root-knot nematode cotton variety trial conducted at AG-CARES farm, Lamesa, 2011

		Agronomic Properties								% Open			Root-knot
		% Turnout		% Lint		Boll	Seed	Lint	Seed per	Bolls	Storm		Nematode $500cm^3$
Designation	Yield	Lint	Seed	Picked	Pulled	Size	Index	Index	Boll	10/7/2011	Resistance	Height	soil
Bayer CropScience BX 1261B2F	375	25.2	47.2	35.0	26.6	4.1	9.3	5.3	27.7	75	5	25	2670
All-Tex ATX 10WR784 RF	361	28.6	44.3	38.9	28.6	4.2	8.3	5.7	28.4	71	5	25	7350
FiberMax FM 9101GT	359	27.0	44.9	38.1	28.1	4.8	10.9	7.2	25.7	75	6	26	1500
Deltapine DP 1133 B2RF	284	25.9	41.8	38.5	26.8	3.7	8.3	5.8	24.2	72	4	27	2490
Mean	524	26.0	44.8	36.7	27.4	4.3	9.6	6.0	26.2	73	5	25	6752
c.v.%	36.6	4.8	4.5	3.9	4.3	6.0	3.7	6.2	6.7	10.7	15.0	9.8	
LSD 0.05	270	1.8	2.8	2.9	2.4	0.5	0.7	0.8	3.6	11	1	3	

Table 2. Fiber quality results of the pivot-irrigated root-knot nematode cotton variety trial conducted at the AG-CARES farm, Lamesa, 2011

Designation	Micronaire	Length	Uniformity	Strength	Elongation	Rd	+b	Leaf	Color Grade [1/]
Deltapine DP 1252 B2RF	4.1	1.10	80.8	30.9	9.2	77.1	9.2	1	21-3,31-4
Monsanto 10R020B2R2	4.7	1.03	80.1	28.5	7.3	77.6	9.2	1	21-3,31-1
Bayer CropScience BX 1252LLB2	4.3	1.11	81.7	32.5	8.3	75.8	9.6	2	21-4,31-2
Deltapine DP 174 RF	4.7	1.04	79.6	27.5	8.2	76.1	9.1	1	31-3
Stoneville ST 5458B2RF	5.3	1.04	80.0	29.4	8.1	74.6	9.6	1	31-3,32-1
Deltapine DP 1212 B2RF	4.9	1.11	82.1	33.7	9.3	74.8	9.3	1	31-3,42-1
FiberMax FM 2011GT	4.6	1.06	81.7	31.0	7.1	75.7	8.2	1	31-1,41-1
Deltapine DP 1032 B2RF	4.3	1.10	80.5	30.1	7.6	76.9	9.1	1	31-1,31-3
Deltapine DP 1044 B2RF	4.9	1.08	80.9	31.2	9.5	77.1	8.9	1	31-1,31-3
PhytoGen PHY 375 WRF	4.3	1.04	80.4	28.8	7.5	76.9	8.8	1	31-1
FiberMax FM 2989GLB2	4.5	1.08	80.1	30.3	6.7	77.3	8.7	1	21-2,31-2
Bayer CropScience BX 1262B2F	4.6	1.06	80.6	31.6	8.7	75.7	9.3	1	31-3
PhytoGen PHY 367 WRF	4.4	1.05	79.9	28.7	8.9	73.8	9.6	2	32-1,32-2
Bayer CropScience BX 1264B2F	4.4	1.07	81.1	31.0	7.3	75.7	8.3	2	21-2,41-2
Stoneville ST 4288B2F	3.9	1.12	80.7	30.3	7.6	77.5	8.2	1	31-1,41-3
NexGen NG4111 RF	4.5	1.07	81.0	31.1	7.8	76.8	9.1	1	21-4,31-3
Stoneville ST 4145LLB2	3.8	1.05	79.7	27.2	7.1	76.2	9.1	2	31-3
Bayer CropScience BX 1150B2F	4.6	1.14	82.3	34.0	8.3	75.0	9.7	2	32-1
NexGen NG4012 B2RF	4.3	1.07	80.0	29.7	6.4	76.2	8.9	2	31-2,31-3
PhytoGen PHY 565 WRF	4.5	1.07	81.1	31.7	8.9	75.8	9.1	1	31-1,32-2
FiberMax FM 9103GT	4.2	1.07	80.5	31.0	7.4	76.8	9.1	1	31-1,31-3
FiberMax FM 2484B2F	4.5	1.08	81.0	30.2	7.0	78.8	8.3	1	31-1
GB-6-1-2	4.7	1.06	80.1	31.3	7.2	76.3	9.3	1	31-3
Stoneville ST 5445LLB2	4.5	1.07	80.3	29.7	7.4	76.5	9.2	1	31-3
Deltapine DP 1219 B2RF	4.4	1.07	79.7	30.1	7.6	76.8	9.1	1	21-4,31-3
FiberMax FM 9250GL	4.1	1.08	80.3	29.4	6.1	78.8	8.1	1	31-1
All-Tex Nitro 44 B2RF	4.1	1.17	83.1	35.5	8.5	77.2	9.0	2	31-1,31-3
FiberMax FM 9058F	4.4	1.09	79.8	29.0	6.4	79.3	8.4	1	21-2
PhytoGen PHY 499 WRF	4.6	1.05	81.8	32.6	10.0	76.1	9.4	1	21-4,31-3
All-Tex ATX 10CR1064 B2RF	4.0	1.03	79.3	25.4	6.5	76.2	8.9	1	31-1,31-3

Table 2. Fiber quality results of the pivot-irrigated root-knot nematode cotton variety trial conducted at the AG-CARES farm, Lamesa, 2011

Designation	Micronaire	Length	Uniformity	Strength	Elongation	Rd	+b	Leaf	Color Grade [1/]
Bayer CropScience BX 1261B2F	4.4	1.07	80.5	29.4	8.1	75.2	9.1	1	31-3,31-4
All-Tex ATX 10WR784 RF	4.3	1.05	80.2	28.2	7.7	77.9	8.6	1	21-2,31-1
FiberMax FM 9101GT	4.6	1.07	80.3	30.3	6.3	76.3	8.5	1	31-1,31-2
Deltapine DP 1133 B2RF	4.2	1.08	80.7	32.3	8.8	75.5	9.4	1	31-3,32-1
Mean	4.4	1.07	80.6	30.4	7.8	76.4	9.0	1	
c.v.%	6.0	1.9	0.8	3.2	5.3	2.2	3.8	38.4	
LSD 0.05	0.5	0.04	1.3	2.0	0.8	3.3	0.7	1	

TITLE:

Effect of Cultivars with Partial Resistance to Root-knot Nematodes and Irrigation on Yield and Nematode Reproduction at AC-CARES, Lamesa, TX, 2011.

AUTHORS:

Terry Wheeler, Victor Mendoza, Garrett Clark, and Danny Carmichael, Texas AgriLife Research, Lubbock.

MATERIALS AND METHODS:

Plot size:	Length of the wedge x 4 rows; 3 replications for irrigation rate x 3 replications/irrigation rate for variety (split plot design with water rate as the main plot).
Varieties:	Fibermax (FM) 9160B2F (susceptible to root-knot nematode) Stoneville (ST) 5458B2F (partially resistant); ST 4288B2F (partially resistant); Phytogen (PHY) 367WRF (partially resistant).
Irrigation rates:	High, Medium, Low
Data collected:	Stand, root-knot nematode density in late August, and yield.

RESULTS:

The variety ST 5458B2F had the highest yields at all irrigation rates relative to the other varieties tested (Table 1), and also the highest value/acre in the test. All three varieties with partial resistance against root-knot nematode had lower nematode densities in August than the susceptible check (FM 9160B2F) (Table 1). Stands were poor overall with this site, and probably should have been replanted.

Table 1. Effect of varieties with partial resistance to root-knot nematode and irrigation rate on yield and root-knot nematode population density.

Variety	Stand Plants/ ft. row	Root-knot /500 cc soil	Yield (lbs/acre)			Value ($)/acre[2]		
			Low water	Medium water	High water	Low water	Medium water	High water
FM 9160B2F	0.8 b	3,947 a[1]	209 a	370 c	626 bc	181 a	321 c	544 b
PHY 367WRF	0.7 b	787 b	224 a	521 b	691 b	190 a	443 b	588 b
ST 4288B2F	1.3 a	853 b	223 a	424 c	590 c	201 a	383 bc	532 b
ST 5458B2F	1.4 a	1,293 b	279 a	613 a	793 a	249 a	547 a	706 a

[1]The different letters indicate that variety means are significantly different ($P<0.05$).
[2]Value/acre was calculated by taking the loan value and adding $0.35/lb of lint (to relate better to actual price) and multiply that times the yield.

TITLE:

Evaluation of In-Furrow Insecticide and Seed Treatments for Control of Thrips in Cotton, at AG-CARES, Lamesa, TX, 2011.

AUTHORS:

David Kerns and Bo Kesey

MATERIALS AND METHODS:

Varieties:	Phytogen 375WRF and Phytogen 467WRF
Planting Dates:	28 April and 3 May
Experimental Design:	Randomized complete block with 4 replications
Plot size:	4 rows x 35 ft

Two near identical tests were conducted; one at Texas AgriLife Research Station in Halfway, TX (Tables 1 and 2) and the other at the Texas AgriLife Agricultural Complex for Advanced Research and Extension Systems Station in Lamesa, TX (Tables 3 and 4). The variety at the Halfway locations was PHY 375WRF and it was planted on 28 Apr. The variety at the Lamesa location was PHY 467WRF and it was planted on 3 May. Both tests were planted on 40-inch rows and irrigated using pivot sprinkler irrigation. The tests were RCB designs with four replications. Plots were 4-rows wide × 30-ft in length. Treatments consisted of the seed treatments Cruiser, Gaucho 600 and Aeris, an in-furrow granular application of Temik, and in-furrow sprays of Platinum, Admire Pro and Larvin. In-furrow sprays were applied with a single TeeJet 8002EVS nozzle per row oriented to spray vertically in the seed furrow immediately following the seed drop. The spray system was pressurized with CO_2 at 30 psi and calibrated to deliver 10 gpa. Adult and immature thrips were sampled by collecting 5 plants per plot from the two outside rows into 1-pt jars containing a 30% isopropyl alcohol solution. Samples were returned to the lab where they were vacuum-filtered onto filter paper, and the immature and adult thrips counted using a stereoscopic dissecting scope. Samples were taken weekly following crop emergence. Damage due to thrips was visually assessed when damage was evident using a 1-5 damage rating scale where 1 = no damage and 5 = extensive damage. Data were analyzed using ANOVA and the means were separated with an F protected LSD ($P \geq 0.05$).

RESULTS AND DISCUSSION:

The thrips population at the Halfway location was comprised of approximately 80% onion thrips and 20% western flower thrips. At 3 days after emergence (DAE), there were no differences in thrips among treatments (Table 1). By 11 DAE there were significant differences among treatments in number of adult and total thrips. However, Cruiser seed treatment was the only treatment that had fewer thrips than the untreated. At no other point were differences detected among treatments in the number of thrips (Tables 1 and 2). Differences were, however, detected based on damage ratings (Table 2). At 17 DAE all of the insecticide treatments had less damage than the untreated, but did not differ from one another. By 24 DAE, the untreated continued to exhibit the most damage but Larvin had slightly more damage than Cruiser, Gaucho, Aeris and Admire Pro. The thrips population at the Lamesa location was lower than at Halfway location and was comprised of approximately 86% onion thrips and 14% western flower thrips (Tables 3 and 4). Differences among treatments for the number of thrips present were non-detectable until the 5th true leaf stage, 26 DAE (Table 4). Although, none of the treatments differed from the untreated, plants treated with Platinum or Gaucho had more adult thrips than those treated with Cruiser or Aeris. At no time were differences detected among treatment in thrips damage (Table 4).

Table 1. Halfway test location.

Treatment/ formulation	Rate amt product/ac	16 May – cotyledon stage (18 DAP; 3 DAE) Thrips per 5 plants			24 May – cotyledon stage (26 DAP; 11 DAE) Thrips per 5 plants		
		immatures	adults	total	immatures	adults	total
Untreated	--	0.00 a	3.50 a	3.50 a	0.25 a	2.00 abc	2.25 abc
Platinum 75SG	2.67 oz	0.00 a	1.80 a	1.80 a	0.00 a	3.75 a	3.75 a
Cruiser ST	0.34 mg-ai/seed	0.00 a	0.75 a	0.75 a	0.00 a	0.00 d	0.00 d
Admire Pro 4.6AF	9.2 fl-oz	0.00 a	1.80 a	1.80 a	0.00 a	0.75 cd	0.75 cd
Gaucho 600	0.374 mg-ai/seed	0.25 a	2.00 a	2.25 a	0.00 a	0.75 cd	0.75 cd
Larvin 3.2AF	40 fl-oz	0.00 a	0.80 a	0.80 a	0.00 a	1.00 bcd	1.00 bcd
Aeris	--[a]	0.00 a	2.00 a	2.00 a	0.00 a	1.25 bcd	1.25 bcd
Temik 15G	3.5 lbs	0.00 a	0.75 a	0.75 a	0.00 a	2.75 ab	2.75 ab

Values in a column followed by the same letter are not different based an F protected LSD ($P \geq 0.05$).
[a]Aeris is a mixture of Gaucho 600 at 0.375 mg(AI)/seed and thiodicarb at 0.375 mg(AI)/seed.

Table 2. Halfway test location.

Treatment/ formulation	Rate amt product/ac	30 May – 1st true leaf stage (32 DAP; 17 DAE) Thrips per 5 plants immatures	adults	total	Damage rating (1-5)	6 June – 3rd true leaf stage (39 DAP; 24 DAE) Thrips per 5 plants immatures	adults	total	Damage rating (1-5)
Untreated	--	1.25 a	0.50 a	1.75 a	3.25 a	4.17 a	0.42 a	4.58 a	4.00 a
Platinum 75SG	2.67 oz	0.25 a	0.00 a	0.25 a	1.75 b	0.17 a	1.42 a	1.58 a	1.67 bc
Cruiser ST	0.34 mg-ai/seed	0.00 a	0.00 a	0.00 a	1.25 b	0.25 a	1.25 a	1.50 a	1.00 c
Admire Pro 4.6AF	9.2 fl-oz	0.00 a	0.55 a	0.55 a	1.25 b	0.17 a	0.08 a	0.25 a	1.00 c
Gaucho 600	0.374 mg-ai/seed	0.00 a	0.50 a	0.50 a	1.30 b	0.00 a	0.50 a	0.50 a	1.00 c
Larvin 3.2AF	40 fl-oz	0.00 a	1.25 a	1.25 a	1.50 b	2.17 a	0.75 a	2.92 a	2.00 b
Aeris	--[a]	0.00 a	1.00 a	1.00 a	1.00 b	0.50 a	0.75 a	1.25 a	1.00 c
Temik 15G	3.5 lbs	0.00 a	0.25 a	0.25 a	1.50 b	0.25 a	0.50 a	0.75 a	1.33 bc

Values in a column followed by the same letter are not different based an F protected LSD ($P \geq 0.05$).
[a]Aeris is a mixture of Gaucho 600 at 0.375 mg(AI)/seed and thiodicarb at 0.375 mg(AI)/seed.

Table 3. AG-CARES test location.

Treatment/ formulation	Rate amt product/ac	20 May – cotyledon stage (17 DAP; 4 DAE) Thrips per 5 plants immatures	adults	total	25 May – cotyledon stage (22 DAP; 9 DAE) Thrips per 5 plants immatures	adults	total
Untreated	--	0.00 a	5.50 a	5.50 a	1.25 a	2.50 a	3.75 a
Platinum 75SG	2.67 oz	0.00 a	3.75 a	3.75 a	0.75 a	3.25 a	4.00 a
Cruiser ST	0.34 mg-ai/seed	0.00 a	0.50 a	0.50 a	0.10 a	0.80 a	0.89 a
Admire Pro 4.6AF	9.2 fl-oz	0.00 a	2.25 a	2.25 a	0.00 a	1.00 a	1.00 a
Gaucho 600	0.374 mg-ai/seed	0.00 a	3.00 a	3.00 a	0.00 a	2.50 a	2.50 a
Larvin 3.2AF	40 fl-oz	0.00 a	3.75 a	3.75 a	0.00 a	1.25 a	1.25 a
Aeris	--[a]	0.00 a	3.25 a	3.25 a	0.00 a	0.75 a	0.75 a
Temik 15G	3.5 lbs	0.00 a	0.50 a	0.50 a	0.00 a	1.00 a	1.00 a

Values in a column followed by the same letter are not different based an F protected LSD ($P \geq 0.05$).
[a]Aeris is a mixture of Gaucho 600 at 0.375 mg(AI)/seed and thiodicarb at 0.375 mg(AI)/seed.

Table 4. AG-CARES test location.

Treatment/ formulation	Rate amt product/ac	1 Jun – 2nd true leaf stage (29 DAP; 16 DAE) Thrips per 5 plants Immatures	Adults	Total	Damage rating (1-5)	8 June – 5th true leaf stage (36 DAP; 23 DAE) Thrips per 5 plants Immatures	Adults	Total	Damage rating (1-5)
Untreated	--	1.00 a	0.25 a	1.25 a	1.75 a	1.25 a	0.25 a	1.50 abc	2.75 a
Platinum 75SG	2.67 oz	0.25 a	0.50 a	0.75 a	0.75 a	1.5 a	1.00 a	2.50 a	2.00 a
Cruiser ST	0.34 mg-ai/seed	0.50 a	0.25 a	0.75 a	0.50 a	0.00 a	0.25 a	0.25 c	1.00 a
Admire Pro 4.6AF	9.2 fl-oz	0.25 a	1.50 a	1.75 a	1.75 a	0.00 a	0.50 a	0.50 bc	1.25 a
Gaucho 600	0.374 mg-ai/seed	0.75 a	0.25 a	1.00 a	0.75 a	1.75 a	0.75 a	2.50 a	1.25 a
Larvin 3.2AF	40 fl-oz	0.50 a	0.25 a	0.75 a	1.00 a	0.50 a	1.00 a	1.50 abc	1.50 a
Aeris	--[a]	0.00 a	0.50 a	0.50 a	0.75 a	0.00 a	0.25 a	0.25 c	1.00 a
Temik 15G	3.5 lbs	0.25 a	0.25 a	0.50 a	1.00 a	0.00 a	2.00 a	2.00 ab	1.00 a

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

[a]Aeris is a mixture of Gaucho 600 at 0.375 mg(AI)/seed and thiodicarb at 0.375 mg(AI)/seed.

TITLE:

Evaluation of Seed Treatments for Control of Thrips in Cotton at AG-CARES, Lamesa, TX, 2011.

AUTHORS:

David Kerns and Bo Kesey

MATERIALS AND METHODS:

Variety:	Stoneville 4288B2RF
Planting Date:	3 May
Experimental Design:	Randomized complete block with 4 replications
Plot size:	4 rows x 100 ft

This test was conducted at the Texas AgriLife Agricultural Complex for Advanced Research and Extension Systems Station in Lamesa, TX. All the treatments evaluated were seed treatments. Adult and immature thrips were sampled by visually inspecting 10 whole plants per plot taken for the outside two rows. Samples were taken on 13, 20 and 25 May, and 1 Jun. Plant damage due to thrips was visually assessed on 25 May and 1 Jun using a 1-5 damage rating scale where 1 = no damage and 5 = extensive damage. Leaf miners were assessed by counting the number of mines per plant on 20 May. Plant stands were estimated on 16 and 25 May by counting the number of plants in 1/1000th acre within a single middle row. Data were analyzed using ANOVA and the means were separated with an F protected LSD ($P \geq 0.05$).

RESULTS AND DISCUSSION:

The thrips population in this test was a mixture of approximately 86% onion thrips and 14% western flower thrips. On all sample dates the untreated check contained more adults and total thrips than the seed treatments which did not differ from one another (Tables 1 and 2). Similar differences in immatures occurred only on 25 May (Table 2). Damage ratings taken at 15 and 22 DAE demonstrated a similar pattern to the thrips counts where all of the seed treatments had less damage than the untreated, but did not differ from one another. Based on plant stand counts, treatments containing Poncho/Votivo were slower to emerge than the other treatments (Table 1), but were similar in plant population by 15 DAE (Table 2). Differences in leaf miner mines were detected at 10 DAE (Table 1). The untreated and cotton treated only with Gaucho 600FS suffered more damage for leaf miners than the other seed treatments.

Table 1.

Treatment/ formulation[c]	Rate amt product/100 lbs seed	13 May – cotyledon stage (3 DAE) Thrips per plant Immatures	Adults	Total	16 May (6 DAE) Plants/ac	20 May – 1 true leaf stage (10 DAE) Thrips per plant Immatures	Adults	Total	Leaf miners Mines/ Plant
Untreated	--[a]	0.00 a	0.58 a	0.58 a	50,750 ab	0.38 a	1.45 a	1.83 a	1.83 a
Gaucho 600FS	9.49 fl-oz	0.00 a	0.10 b	0.10 b	56,000 a	0.05 a	0.23 b	0.28 b	2.18 a
Gaucho 600FS + Poncho/Votivo	9.49 fl-oz + 10.76 fl-oz	0.00 a	0.08 b	0.08 b	39,750 bc	0.05 a	0.10 b	0.15 b	0.13 b
Aeris + Poncho/Votivo	--[a] + 10.76 fl-oz	0.00 a	0.18 b	0.18 b	35,000 c	0.03 a	0.05 b	0.08 b	0.15 b
Aeris + Poncho/Votivo + BYF14182	--[a] + 10.76 fl-oz 0.32 fl-oz	0.00 a	0.20 b	0.20 b	37,250 bc	0.03 a	0.08 b	0.10 b	0.03 b
Avictia CC	--[b]	0.00 a	0.20 b	0.20 b	52,000 ab	0.03 a	0.23 b	0.25 b	0.15 b

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

[a]Aeris is a mixture of Gaucho Grande 5FS at 0.375 mg(AI)/seed and thiodicarb at 0.375 mg(AI)/seed.

[b]Avicta Complete Cotton is a mixture of Avicta 500FS at 0.15 mg(AI)/seed, Cruiser 5FS at 0.34 mg(AI)/seed, and Dynasty CST 125FS at 0.03 mg(AI)/seed.

[c]All treatments included the fungicides Vortex FL at 0.09 fl-oz, Baytan 30 at 0.48 fl-oz, Allegiance FL at 0.75 fl-oz per 100 lbs seed.

Table 2.

Treatment/ formulation[c]	Rate amt product/100 lbs seed	25 May – 2 true leaf stage (15 DAE)					1 June – 3 true leaf stage (22 DAE)			
		Thrips per plant			Damage (1-5)	Plants/ac	Thrips per plant			Damage (1-5)
		Immatures	Adults	Total			Immatures	Adults	Total	
Untreated	--[a]	1.40 a	1.23 a	2.63 a	2.5 a	51,250 a	0.13 a	0.45 a	0.58 a	3.25 a
Gaucho 600FS	9.49 fl-oz	0.03 b	0.03 b	0.05 b	1.0 b	55,000 a	0.00 a	0.03 b	0.03 b	1.0 b
Gaucho 00FS+ Poncho/ Votivo	9.49 fl-oz + 10.76 fl-oz	0.00 b	0.10 b	0.10 b	1.0 b	53,750 a	0.00 a	0.00 b	0.00 b	1.0 b
Aeris + Poncho/ Votivo	--[a] + 10.76 fl-oz	0.00 b	0.03 b	0.03 b	1.0 b	45,500 a	0.00 a	0.05 b	0.05 b	1.0 b
Aeris + Poncho/ Votivo + BYF14182	--[a] + 10.76 fl-oz 0.32 fl-oz	0.00 b	0.05 b	0.05 b	1.0 b	45,500 a	0.00 a	0.05 b	0.05 b	1.0 b
Avicta CC	--[b]	0.03 b	0.05 b	0.08 b	1.0 b	58,000 a	0.00 a	0.00 b	0.00 b	1.0 b

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

[a]Aeris is a mixture of Gaucho Grande 5FS at 0.375 mg(AI)/seed and thiodicarb at 0.375 mg(AI)/seed.

[b]Avicta Complete Cotton is a mixture of Avicta 500FS at 0.15 mg(AI)/seed, Cruiser 5FS at 0.34 mg(AI)/seed, and Dynasty CST 125FS at 0.03 mg(AI)/seed.

[c]All treatments included the fungicides Vortex FL at 0.09 fl-oz, Baytan 30 at 0.48 fl-oz, Allegiance FL at 0.75 fl-oz per 100 lbs seed.

TITLE:

Cotton Fruiting/Yield Compensation after *Lygus* Induced Square Loss as Influenced by Variety x Water Treatments, Lamesa, TX, 2011.

AUTHORS:

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

MATERIALS AND METHODS:

Plot Size: 4 rows by 50 feet, 3 replications
Planting Date: May 3
Varieties: DP 0935 B2RF, AMC 1532 B2RF
Fertilizer: 100-35-0
In-season irrigation: Low = 6.6"; High = 13.2"
Insect treatments: 5 and 8 *Lygus* bugs (late instars) released per plant (5PP and 8PP) and Control (three total treatments)
Insect release dates: June 28, July 6, 12, and 19
Plant mapping dates: June 28, July 5, 12, 19, and 27
Harvest Date: October 17, 2011 (Hand-harvested)

Two cotton varieties (DP 0935 B2RF and AMC 1532 B2RF) were evaluated under low and high irrigation levels. *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 four consecutive weeks to mimic a natural early season chronic infestation. The five and eight bugs per plant treatments were designed to exert significant insect pressure on fruiting cotton plants. Plant mapping was conducted immediately prior to each insect augmentation event and one additional plant mapping 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 in high-irrigation treatment, but low irrigation treatment plots were not significantly influenced by insect-augmentation treatments (Tables 1-2). For both cultivars, control plots underwent a higher percentage of physiological fruit abscission in low-irrigation regime compared with that in high irrigation regime. Simultaneously, the higher amount of irrigation water favored greater damage by *Lygus* (Table 2). Nevertheless, cultivars did not vary in their response to *Lygus* infestation and damage. Overall, lint yield was similar between the two cultivars (DP 0935 B2RF: 423 lb/A; AMC 1532 B2RF: 406 lb/A), whereas high-irrigation regime resulted in significantly greater yield than low-irrigation regime in both cultivars (Table 3). However, both cultivars were able to fully compensate the early fruit loss caused by *Lygus* injury (Table 3).

Table 1. Percentage square abscission in cotton induced by varying levels of four consecutive releases of *Lygus* nymphs in water x cultivar treatments, Lamesa, Texas, 2011.

Insect Density	Cultivar			
	AMC 1532 B2RF		DP 0935 B2RF	
	Low Water	High Water	Low Water	High Water
Control	13 a	8 b	16 a	5 b
Low	18 a	9 b	20 a	13 a
High	18 a	26 a	35 a	12 a

Table 2. Percentage square abscission in cotton induced by varying levels of four consecutive releases of *Lygus* nymphs compared between two cultivars, Lamesa, Texas, 2011.

Insect Density	Cultivar	
	AMC 1532 B2RF	DP 0935 B2RF
Control	11 b	11 b
Low	13 ab	16 ab
High	21 a	23 a

Percentage abscission varied with insect density treatment. Percent square abscission did not differ between cultivars for any of the insect density treatment.

Table 3. Lint yield (lb/A) in cotton after *Lygus*-induced pre-flower square loss in water x cultivar treatments, Lamesa, Texas, 2011.

Insect Density	Cultivar			
	AMC 1532 B2RF		DP 0935 B2RF	
	Low Water	High Water	Low Water	High Water
Control	287	543	250	707
Low	189	414	199	594
High	286	718	307	580
Average	254 b	558 a	219 b	627 a

Overall, combined over water level, insect-induced fruit losses were all compensated, except for *Low* insect density in AMC 1532 B2RF. High-water regime resulted in significantly higher yield compared with that in Low-water regime in both cultivars.

TITLE:

Peanut Varietal Tolerance to Herbicides Applied Preemergence at AG-CARES, Lamesa, TX, 2011.

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 25
Varieties:	Flavorrunner 458, Tamrun OL01, Tamrun OL02, Tamrun OL07
Application Date:	Preemergence, April 26
Rainfall (Apr to Sept):	1.49 inches
Irrigation (Apr to Sept):	17.71 inches

RESULTS AND DISCUSSION:

New crop varieties are released each year with greater yield potential, improved drought tolerance and quality, and improved plant protection capabilities. However, new crop varieties may also be released with differential tolerance to herbicides. Previous research has shown that peanut market types and varieties within a market type may have differential herbicide tolerance. The objective of this research was to examine peanut response to Dual Magnum (*S*-metolachlor) and Warrant (acetochlor) when applied preemergence (PRE). Warrant, an encapsulated herbicide for weed control in soybean and cotton, is not currently labeled for use in peanut. Dual Magnum rates used in this study were 10.7, 21.3, and 42.7 oz/A (0.5X, 1X, and 2X the recommended labeled rate in peanut), whereas Warrant rates were 24, 48, and 96 oz/A (also 0.5X, 1X, and 2X the recommended labeled rate in cotton or soybean). Peanut varieties Flavorrunner 458, Tamrun OL01, Tamrun OL02, and Tamrun OL07 were planted April 25 and herbicides were applied on April 26 followed by 0.5 inches of overhead irrigation on April 27 (within 24 hours of application).

A herbicide by variety interaction was observed for peanut injury on May 24 (4 weeks after treatment); therefore, all varieties by herbicide combinations are listed individually. No herbicide by variety interaction was observed on Jun 21, Jul 19, and Sep 29; therefore, herbicide treatments may be pooled within variety to compare differential varietal tolerance, and varieties may be pooled within herbicides to compare differential herbicide injury. On May 24, the 2X rate of Warrant and 1X rate of Dual Magnum injured Flavorrunner 458 and OL02, but injury did not exceed 3% (Table 1a). Dual Magnum at 2X caused 2 to 10% injury, and injury was most severe in OL01 (5%) and OL02 (10%). On Jun 21 (8 weeks after treatment), when pooled over peanut varieties, injury was observed following the 2X rate of Dual Magnum (6%), and this injury decreased to 3% on Jul 19 (Table 1b). No peanut injury was observed late season (Sep 29). Peanuts were dug on Oct 21 and very poor kernel development was observed due to the unprecedented heat and drought experienced in 2011; therefore, plots were not thrashed. It appears that no differential varietal tolerance was observed following normal use rates of Dual Magnum and Warrant, but additional studies will be conducted in 2012.

Table 1a. Peanut injury by variety as affected by herbicide and rate at AG-CARES, Lamesa, TX, 2011[a].

Variety	Treatment	Timing	Prod.	Rate	Peanut Injury May 24
			oz/A	lb ai/A	%
Flavorrunner 458	Non-treated	---	---	---	0
Tamrun OL01	Non-treated	---	---	---	0
Tamrun OL02	Non-treated	---	---	---	0
Tamrun OL07	Non-treated	---	---	---	0
Flavorrunner 458	Warrant	PRE	24	0.56	0
Tamrun OL01	Warrant	PRE	24	0.56	0
Tamrun OL02	Warrant	PRE	24	0.56	0
Tamrun OL07	Warrant	PRE	24	0.56	0
Flavorrunner 458	Warrant	PRE	48	1.13	0
Tamrun OL01	Warrant	PRE	48	1.13	0
Tamrun OL02	Warrant	PRE	48	1.13	0
Tamrun OL07	Warrant	PRE	48	1.13	0
Flavorrunner 458	Warrant	PRE	96	2.25	2
Tamrun OL01	Warrant	PRE	96	2.25	0
Tamrun OL02	Warrant	PRE	96	2.25	3
Tamrun OL07	Warrant	PRE	96	2.25	0
Flavorrunner 458	Dual Magnum	PRE	10.7	0.635	0
Tamrun OL01	Dual Magnum	PRE	10.7	0.635	0
Tamrun OL02	Dual Magnum	PRE	10.7	0.635	0
Tamrun OL07	Dual Magnum	PRE	10.7	0.635	0
Flavorrunner 458	Dual Magnum	PRE	21.3	1.27	2
Tamrun OL01	Dual Magnum	PRE	21.3	1.27	0
Tamrun OL02	Dual Magnum	PRE	21.3	1.27	3
Tamrun OL07	Dual Magnum	PRE	21.3	1.27	0
Flavorrunner 458	Dual Magnum	PRE	42.7	2.54	2
Tamrun OL01	Dual Magnum	PRE	42.7	2.54	5
Tamrun OL02	Dual Magnum	PRE	42.7	2.54	10
Tamrun OL07	Dual Magnum	PRE	42.7	2.54	2
pValue					0.0022
$LSD_{(0.10)}$					2

[a]Abbreviations: PRE, preemergence

Table 1b. Peanut injury by herbicide and rate when pooled over variety at AG-CARES, Lamesa, TX, 2011[a].

Treatment	Timing	Prod.	Rate	Peanut Injury		
				Jun 21	Jul 19	Sep 29
		oz/A	lb ai/A	----------%----------		
Non-treated	---	---	---	0	0	0
Warrant	PRE	24	0.56	0	0	0
Warrant	PRE	48	1.13	0	0	0
Warrant	PRE	96	2.25	0	1	0
Dual Magnum	PRE	10.7	0.635	0	0	0
Dual Magnum	PRE	21.3	1.27	0	0	0
Dual Magnum	PRE	42.7	2.54	6	3	0
pValue				0.0001	0.0001	1.0000
$LSD_{(0.10)}$				1	1	NS

[a]Abbreviations: PRE, preemergence

TITLE:

Virginia Peanut Tolerance to Herbicides Applied Preemergence at AG-CARES, Lamesa, TX, 2011.

AUTHORS:

Peter Dotray, Lyndell Gilbert, Professor, Technician II
Texas *Agri*Life 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 26
Variety:	Brantley
Application Date:	Preemergence, April 26
Rainfall (Apr to Sept):	1.49 inches
Irrigation (Apr to Sept)	7.71 inches

RESULTS AND DISCUSSION:

Previous research has shown that differential varietal tolerance was apparent in several crops. We have observed that peanut market types and varieties within a market type may have differential tolerance to herbicides applied preemergence (PRE) and postemergence. The objective of this research was to examine peanut response in a Virginia variety (Brantley) to Dual Magnum (*S*-metolachlor) and Warrant (acetochlor) applied PRE. Warrant, an encapsulated herbicide for weed control in soybean and cotton, is not currently labeled for use in peanut. Dual Magnum rates used in this study were 10.7, 21.3, and 42.7 oz/A (0.5X, 1X, and 2X the recommended labeled rate in peanut), whereas Warrant rates were 24, 48, and 96 oz/A (also 0.5X, 1X, and 2X the recommended labeled rate in cotton or soybean). 'Brantley' was planted Apr 26 and herbicide treatments were made within a few hours. Herbicides were "activated" with 0.5 inches of overhead irrigation within 24 hours (Apr 27). Plots were evaluated May 24 (4 weeks after treatment (WAT), Jun 21, Jul 19, and Sep 29 for herbicide-induced visible injury. No peanut injury (chlorosis, necrosis, or stunt) was noted at any evaluation time (Table 1). Due to the very challenging conditions experienced in 2011 (excessive heat, drought, wind), very poor kernel development was observed after digging; therefore, no yield or grade data was collected. This study suggests that Brantley is tolerant to Dual Magnum and Warrant to rates up to 2X, but additional studies including yield data will be performed in 2012.

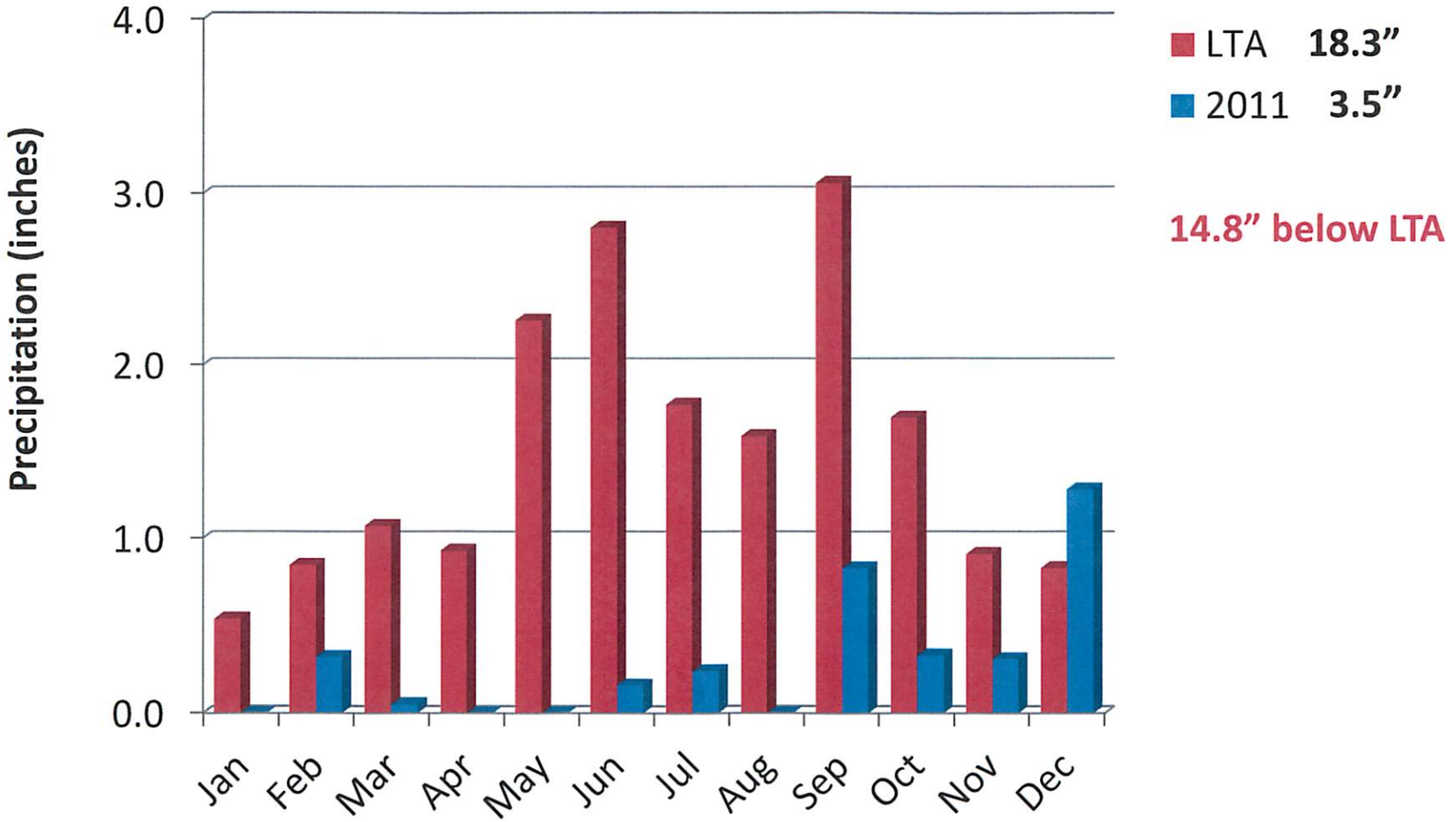
Table 1. Virginia peanut injury from preemergence herbicides at AG-CARES, Lamesa, TX, 2011[a].

Treatment	Timing	Prod.	Rate	Peanut Injury			
				May 24	Jun 21	Jul 19	Sep 29
		oz/A	lb ai/A	----------%----------			
Non-treated	---	---	---	0	0	0	0
Warrant	PRE	24	0.56	0	0	0	0
Warrant	PRE	48	1.13	0	0	0	0
Warrant	PRE	96	2.25	0	0	0	0
Dual Magnum	PRE	10.7	0.635	0	0	0	0
Dual Magnum	PRE	21.3	1.27	0	0	0	0
Dual Magnum	PRE	42.7	2.54	0	0	0	0
$LSD_{(0.10)}$				NS	NS	NS	NS

[a]Abbreviation: PRE, preemergence

APPENDIX

Lamesa LTA (1981-2011) vs. 2011 Rainfall



Source: http://www.weather.gov/climate/index.php?wfo=lub

Lamesa 30-Yr Long Term Average (1981-2011) vs. 2008 - 2011 Cotton Heat Unit Accumulation