Texas A&M Agriculture
THE TEXAS A&M UNIVERSITY SYSTEM
Agricultural Research and Extension Center at Lubbock
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2005 produced record cotton yields at AG-CARES. We want to thank Lamesa Cotton Growers for their sixteenth year of support of the AG-CARES program on behalf of both the Texas Agricultural Experiment Station (TAES) and Texas Cooperative Extension (TCE). This site remains an extremely important location for our research and extension scientists to conduct work on sandy soils in West Texas. We are excited about results of the first year's work on the 20 acres of subsurface drip irrigation at AG-CARES. It compliments work being conducted at the Helms Farms near Halfway on heavier soil and provides information on management systems for crop production with drip irrigation compared to center pivot systems for this area.

Profitable and sustainable farming systems for the area is the major emphasis at AG-CARES. AG-CARES allows us to leverage funds provided by producers groups, commodities, state agencies, and industries to meet and address agricultural needs of producers in the area. Major funding sources include Lamesa Cotton Growers, Texas State Support Committee for Cotton, Cotton Incorporated, Texas Peanut Producers Board, seed and chemical companies, and businesses in Lamesa. Our federal, state and county elected officials continue to provide strong support for the success of AG-CARES.

There are at least 140 cotton varieties being offered today in West Texas. Texas A&M Agriculture is addressing this issue through large scale variety tests at multiple locations across the Southern High Plains. At AG-CARES, we are looking at selected varieties to determine their response under low, medium, and high irrigation levels. Indications are that all varieties do not respond equally which indicates that farms with varying irrigation capacities may want to carefully choose their varieties.

Strong leadership and direction for our programs are provided by Eddie Herm, Matt Farmer, Jerry Chapman, and John Farris (Lamesa Cotton Growers), Dr. Randy Boman, and Tommy Doederlein (TCE), and Drs. Wayne Keeling (TAES) and Dana Porter (TAES/TCE). Danny Carmichael serves as the site manager. We are indebted to all those mentioned above as well as the many staff members of the Lubbock Research and Extension Center and the Dawson County Extension Office who provided support at this site.

Jaroy Moore

Jaroy Moore
Resident Director of Research
Texas Agricultural Experiment Station

Bob Robinson

Bob Robinson
Regional Program Director -
Agriculture and Natural Resources
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THE LAMESA COTTON GROWERS WOULD LIKE TO THANK THE FOLLOWING FOR THEIR CONTRIBUTIONS TO THE AG-CARES PROJECT:

Bayer CropScience
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Dawson County Commissioners Court
Delta & Pine Land Seed Co.
Monsanto Co.
National Peanut Board
Sam Stevens, Inc.
Stoneville Seed Co.
Syngenta
Texas Peanut Producers Board

TITLE:

Subsurface Drip Irrigation Installation and Research at AG-CARES, Lamesa, TX, 2005

INVESTIGATORS:

Dana Porter, Jim Bordovsky, Wayne Keeling, Randy Boman, John Everitt, Extension Irrigation Specialist, Irrigation Engineer, Professor, Extension Agronomist - Cotton, and Research Associate

MATERIALS AND METHODS:

In the spring of 2005 a subsurface drip irrigation (SDI) system was installed at the AG-CARES farm. Within the 20-acre (approximate) SDI field are 22 zones. Each zone is individually metered, allowing for multiple irrigation treatments (irrigation rates and times). Eighteen zones have alternate furrow (80-inch) tape lateral spacing, consistent with the majority of systems currently used in the region on commercial farms. Four zones have every row (40-inch) tape lateral spacing, a layout used in some situations to mitigate salinity and/or limited lateral water movement in some soils. The inclusion of both tape spacing designs allows for side-by-side comparison of irrigation system designs. The relatively large size of the zones (8 rows by approximately 823 ft. for the every row tape spacing; 16 rows by approximately 823 ft. for the alternate furrow tape spacing) allows for multiple research treatments within each zone, and hence for investigation of interactions between multiple research factors.

In this first season, multiple cotton varieties, multiple plant populations, and multiple irrigation rates were addressed in studies conducted at the location. Variety trials and other tests conducted in the SDI field are reported separately.

Irrigation Treatments:	High irrigation treatment: 12.94 inches
	Low irrigation treatment: 8.92 inches
Rainfall (in-season):	6.57 inches
Pre-season Irrigation:	5.55 inches (average, estimated)

RESULTS AND DISCUSSION:

Irrigation treatments included a high irrigation rate (12.94 inches in-season irrigation + pre-season irrigation + precipitation); and a low irrigation rate (8.92 inches in-season irrigation + pre-season irrigation + precipitation). With seasonal estimated evapotranspiration of approximately 27 inches, total water applied ranged from 78% to 93% of seasonal crop ET (including pre-season irrigation). Total in-season water applied ranged from 57% to 72% of seasonal crop ET (not including pre-season irrigation). Lint yields ranged from 1,123 to 1,513 pounds of lint per acre (averages for variety by plant population by irrigation level treatment combinations). Overall average lint yield was 1,295 pounds of lint per acre at the lower irrigation rate, and 1,367 pounds of lint per acre at the higher irrigation rate. Average in-season crop water use efficiency was 84 pounds of lint per inch of water at the lower irrigation rate, and 71 pounds of lint per inch of water at the higher irrigation rate. Data are preliminary, and results varied with plant population and variety. Additional data analyses are ongoing.

The research team was very pleased to initiate studies in this first season of operation of the SDI system. Planned research in the near future includes continuation of variety by plant population by irrigation rate studies; comparison of crop germination and yield response under alternate furrow and every row tape placement; evaluation of maintenance strategies including acid injection procedures; fertility management and insect ecology studies under conventional and conservation tillage; and evaluation of best management practices.

SDI system layout is shown in Figure 1. Photos from the SDI field and studies are shown in Figure 2.

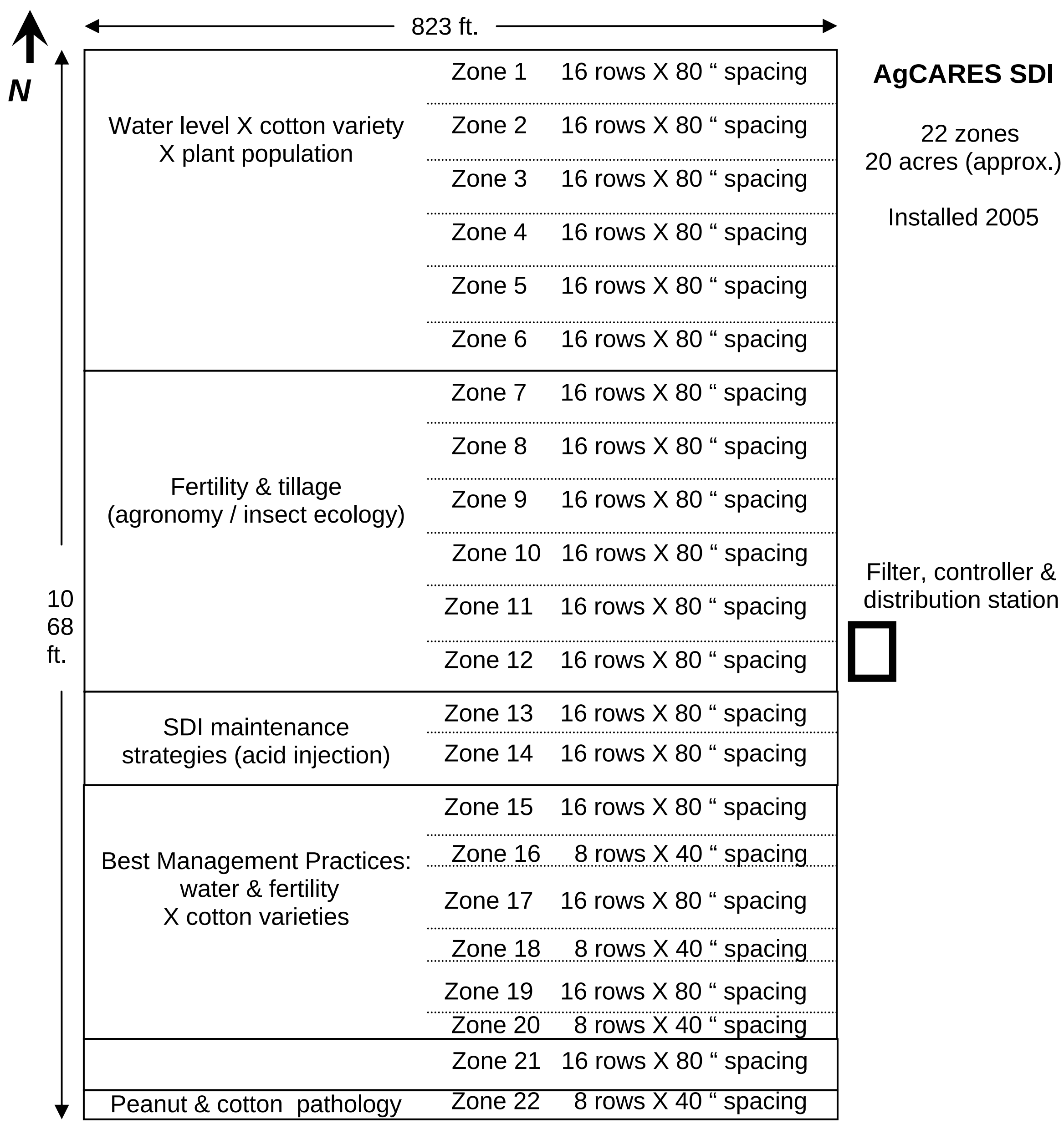

Figure 1. Field layout of subsurface drip irrigation (SDI) system at AG-CARES.

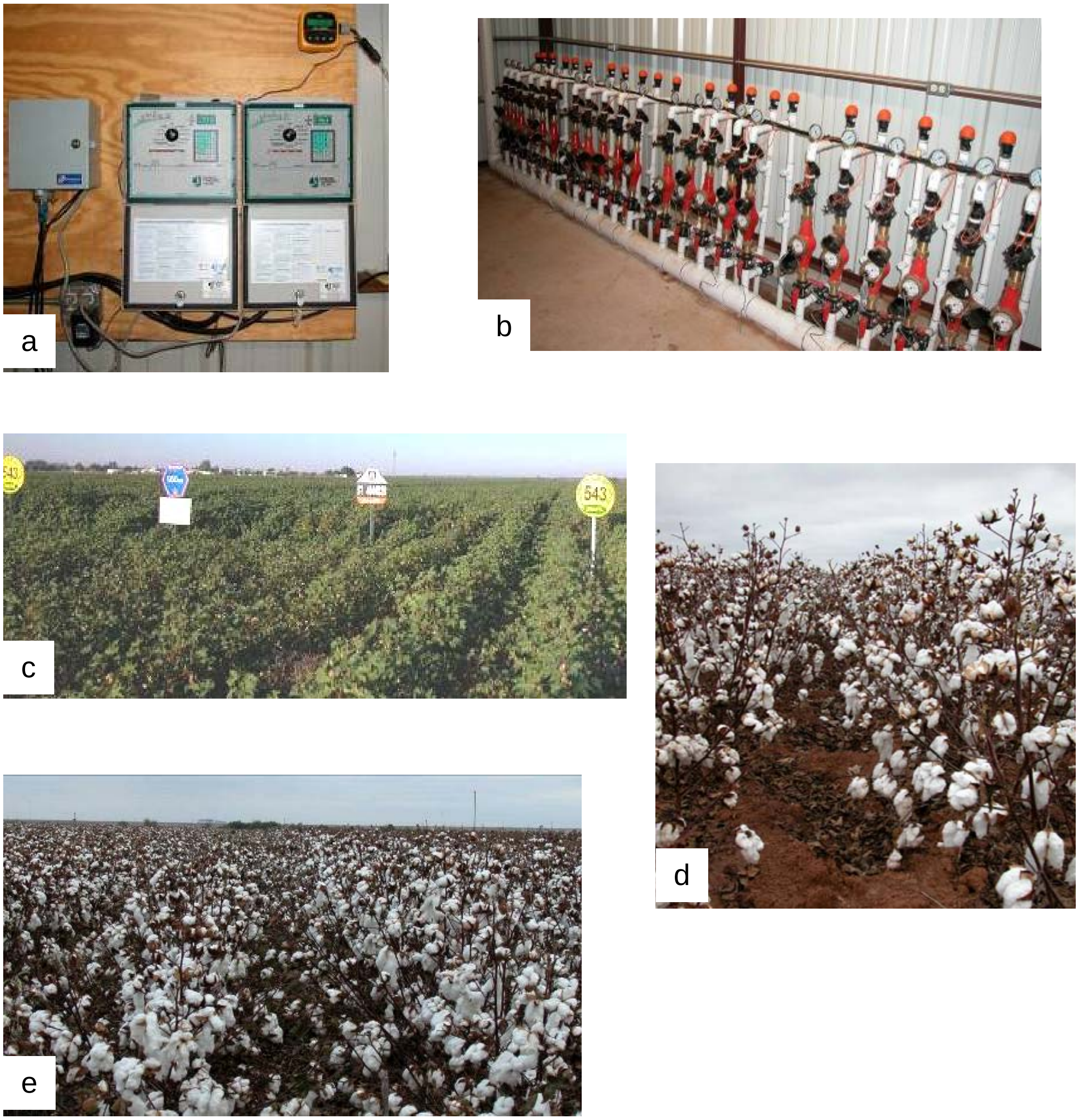

Figure 2. Photos from subsurface drip irrigation (SDI) system at AG-CARES. a) control panel for subsurface drip irrigation system; b) manifold system with pressure gauges and flow meters for each zone; c) variety trials marked for a crop tour held in September 2005; d) close up photo at the end of the season – note that furrow dikes were used in conjunction with SDI to harvest rainfall; and e) photo of SDI-irrigated cotton at the end of the season.

TITLE:

Cotton Variety Performance as Affected by Low-Energy Precision Application (LEPA) Irrigation Levels at AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Wayne Keeling, Jim Bordovsky, Randy Boman and John Everitt; Professor, Agricultural Engineer-Irrigation, Extension Agronomist-Cotton, and Research Associate

MATERIALS AND METHODS:

Plot Size:	8 rows by 500 feet, 3 replications
Planting Date:	May 9
Varieties:	FiberMax 989 B2R, FiberMax 960 B2R, Stoneville 4646 B2R, Delta Pine 543 B2R
Herbicides:	Treflan 1.25 pt/A PPI Roundup WeatherMax 22 oz/A POST Roundup WeatherMax 22 oz/A PDIR
Fertilizer:	130-34-0
Plant Growth Regulator:	Pentia 16 oz Early Bloom (High irrigation treatments only)
Irrigation in-season:	Low 7.5” Medium 10.0” High 12.0 “
Harvest Date:	October 19

RESULTS AND DISCUSSION:

Four RR/B2R varieties (FM 960B2R, FM 989B2R, ST 4646 B2R and DP 543B2R) were planted under three irrigation levels (based on pumping capacities of 0.125, 0.17, and 0.21”/day) under center pivot LEPA irrigation. Total irrigation applied for the growing season was 7.5”, 10”, and 12”. When averaged across varieties, yields ranged from 1189 to 1457 lbs lint/A with increased yields at progressively higher irrigation levels. Highest lint yields across irrigation levels were produced with FM 960 B2R (1459 lbs/A) compared to the other three varieties which produced similar yields (1246-1333 lbs/A). Yields as affected by variety and irrigation level are summarized in Table 1. Gross revenues per acre were calculated by multiplying lint yield x loan value. Loan values were similar for all varieties, with increasing gross revenues with higher irrigation levels. FM 960B2R produced the highest gross revenues at $809/A (Table 2).

Table 1. Effects of variety and LEPA irrigation levels on cotton lint yields at AG-CARES, Lamesa, TX, 2005.

Variety	L	M	H	Avg.
	----------lbs lint/A----------			
FM 989B2R	1260	1280	1460	1333 b
FM 960B2R	1291	1534	1552	1459 a
ST 4646B2R	1054	1295	1469	1273 b
DP 543B2R	1149	1243	1347	1246 b
	1189 c	1338 b	1457 a	

Table 2. Effects of variety and LEPA irrigation levels on gross revenues at AG-CARES, Lamesa, TX, 2005.

Variety	L	M	H	Avg.
	----------	---------- $/A	----------	----------
FM 989B2R	726	718	820	755 ab
FM 960B2R	727	813	886	809 a
ST 4646B2R	557	741	821	707 b
DP 543B2R	636	704	739	693 b
	662 c	744 b	816 a	

TITLE:

Cotton Variety Performance as Affected by Sub-Surface Drip Irrigation (SDI) Levels at AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Wayne Keeling, Jim Bordovsky, Randy Boman and John Everitt; Professor, Agricultural Engineer-Irrigation, Extension Agronomist-Cotton, and Research Associate

MATERIALS AND METHODS:

Plot Size:	4 rows by 800 feet, 3 replications
Planting Date:	May 18
Varieties:	FiberMax 989 B2R, FiberMax 960 B2R, Stoneville 4646 B2R, Delta Pine 543 B2R
Herbicides:	Treflan 1.25 pt/A PPI Roundup WeatherMax 22 oz/A POST
Fertilizer:	150-70-0
Plant Growth Regulator:	Pentia 8 oz/A fb 16 oz/A
Irrigation in-season:	Low 0.17 "/day (9.0" total) High 0.25"/day (13.0" total)
Harvest Date:	November 9

RESULTS AND DISCUSSION:

A 20-acre subsurface drip irrigation installation was completed in 2005. This study compared four cotton varieties under two maximum irrigation capacities (0.17" per day and 0.25" per day). Total seasonal irrigation applied was 9" and 13", respectively for the low and high irrigation treatments. When averaged across irrigation treatments, yields ranged from 1184 to 1433 lbs lint/A, with highest yields produced with FM 960 B2R and FM 989 B2R. When averaged across varieties, similar yields were produced with both irrigation treatments (Table 1). When averaged across water treatments, highest gross revenues per acre were produced with FM 960 B2R and FM 989 B2R (Table 2). Gross revenues ($/A) were not different between the two irrigation levels.

Table 1. Effects of variety and SDI levels on cotton lint yields at AG-CARES, Lamesa, TX, 2005.

Variety	M	H	Avg.
	------------------------------lbs lint/A----------------------------		
FM 989B2R	1398	1468	1433 a
FM 960B2R	1369	1425	1397 a
ST 4646B2R	1225	1391	1308 b
DP 543B2R	1185	1182	1184 c
	1294 a	1367 a	

Table 2. Effects of variety and SDI levels on gross revenues at AG-CARES, Lamesa, TX, 2005.

Variety	M	H	Avg.
	------------------------------lbs Lint/A----------------------------		
FM 989B2R	704	712	708 a
FM 960B2R	677	709	693 a
ST 4646B2R	595	661	628 b
DP 543B2R	597	580	588 c
	643 a	666 a	

TITLE:

Cotton Variety Performance as Affected by Low-Energy Precision Application (LEPA) Irrigation Levels at AG-CARES, Lamesa, TX, 2003 - 2005.

AUTHORS:

Wayne Keeling, Jim Bordovsky, Randy Boman, Kevin Bronson, and John Everitt; Professor, Agricultural Engineer-Irrigation, Extension Agronomist-Cotton, Associate Professor, and Research Associate

MATERIALS AND METHODS:

Plot Size:	8 rows by 500 feet, 3 replications
Planting Date:	May 9, 2005
Varieties:	FiberMax 989 BR, Stoneville 5599 BR, Paymaster 2280 BR
Herbicides:	Treflan 1.25 pt/A PPI
	Roundup WeatherMax 22 oz/A POST
	Roundup WeatherMax 22 oz/A PDIR
Fertilizer:	130-34-0
Irrigation in-season:	

	2003	2004	2005
Low	6.6”	7.2”	7.5”
Medium	8.8”	9.6”	10.0”
High	11.0”	12.0”	12.0”

Harvest Date:	October 17, 2005

RESULTS AND DISCUSSION:

A trial was conducted in 2003, 2004, and 2005 to compare effects of three irrigation levels on lint yield, loan value, and gross revenue per acre for three cotton varieties. Two longer-season “picker” type varieties [FiberMax (FM) 989 BR and Stoneville (ST) 5599 BR] were compared to a stripper variety [Paymaster (PM) 2280BR]. In each year cotton was planted in early May, fertilized according to soil tests recommendations and harvested in October. Irrigation treatments included a base or medium irrigation which reflected the irrigation available at AG-CARES. Low and high water treatments were + or – 25% of the base quantity.

In 2005, highest yields were produced with ST 5599 BR (Table 1). When averaged across variety, yields ranged from 1028 lbs lint/A at the low water treatment to 1298 lbs lint/A with the high water treatment. Gross revenues ($/A) calculated as yield x loan price was higher with the two picker varieties, FM 989 BR and ST 5599 BR (Table 2).

The three years during which this experiment was conducted included a very dry year (2003) and two years with favorable rainfall (2004 and 2005), with highest yields produced in 2005. Three-year (2003-2005) averages were highest with ST5599 BR at the high water level (Table 3). For both FM 989 BR and PM 2280 BR, similar yields were produced with the medium and high water treatments, indicating no economic benefit to the additional irrigation input. ST 5599 BR did respond to the high irrigation treatment with increased average yield compared to the base irrigation treatment. In each variety, loan value was not affected by irrigation level (Table 4), but FM 989 BR had the highest loan value across all irrigation treatments. Three-year average gross revenues ($/A) did not significantly ($p > .05$) increase for any variety with the high irrigation level compared to the base water treatment (Table 5). Gross revenues were lower for FM 989 BR and ST 5599 BR at the low irrigation treatments, but were not different from

PM 2280 BR. These results indicate that longer season varieties can produce higher yield and gross revenues compared to traditional stripper varieties. Additional irrigation above the base level did not consistently increase yield or gross revenues.

Table 1. Effects of variety and LEPA irrigation levels on cotton lint yields at AG-CARES, Lamesa, TX, 2005.

Variety	L	M	H	Avg.
	--	lbs lint/A	--	
FM 989BR	1073	1243	1343	1220 b
PM 2280BR	863	992	1058	971 c
ST 5599BR	1149	1281	1465	1298 a
	1028 c	1172 b	1289 a	

Table 2. Effects of variety and LEPA irrigation levels on gross revenues at AG-CARES, Lamesa, TX, 2005.

Variety	L	M	H	Avg.
	--	$/A	--	
FM 989BR	601	709	773	694 a
PM 2280BR	449	529	576	518 b
ST 5599BR	583	670	765	673 a
	544 c	636 b	704 a	

Table 3. Average effect of variety and LEPA irrigation levels on cotton lint yields at AG-CARES, Lamesa, TX, 2003 - 2005.

Variety	L	M	H
	---------------------------	lbs lint/A	----------------------------
FM 989BR	936 cd	1228 b	1219 b
PM 2280BR	863 d	1015 c	1020 c
ST 5599BR	1028 c	1263 b	1403 a

Table 4. Average effect of variety and LEPA irrigation levels on cotton loan values at AG-CARES, Lamesa, TX, 2003 - 2005.

Variety	L	M	H
	---------------------------	$/lb	----------------------------
FM 989BR	0.532 abc	0.537 ab	0.552 a
PM 2280BR	0.512 cd	0.520 bcd	0.528 bc
ST 5599BR	0.502 d	0.501 d	0.511 cd

Table 5. Average effect of variety and LEPA irrigation levels on gross revenues at AG-CARES, Lamesa, TX, 2003 - 2005.

Variety	L	M	H
	---------------------------	$/A	----------------------------
FM 989BR	499 c	660 a	672 a
PM 2280BR	442 c	531 bc	539 bc
ST 5599BR	515 c	636 ab	716 a

TITLE:

Replicated Bollgard II with Roundup Ready Flex “Stacked Gene” Cotton Variety Demonstration Under LEPA Irrigation, AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Tommy Doederlein, Randy Boman, Mark Kelley, and Mark Stelter; EA-IPM Dawson/Lynn Counties, Extension Agronomist-Cotton, Extension Program Specialist-Cotton, and Extension Assistant-Cotton.

MATERIALS AND METHODS:

Varieties:	All varieties were Bollgard II/Roundup Ready or Bollgard II/Roundup Ready Flex "Stacked." Those included All-Tex Apex B2RF, All-Tex Summit B2RF, Beltwide Cotton Genetics 9124B2RF, Beltwide Cotton Genetics 9775B2RF, Croplan Genetics 3020B2RF, Croplan Genetics 3520B2RF, Dyna-Gro 2242B2RF, Dyna-Gro 2520B2RF, Deltapine 143B2RF, Deltapine 117B2RF,, Stoneville 4554B2RF, Stoneville 6611B2RF, and FiberMax 989B2R ("standard Bollgard II/Roundup Ready).
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	4.0 seeds/row-ft in 40-inch row spacing (John Deere MaxEmerge vacuum planter)
Plot size:	4 rows by variable length due to circular pivot rows (340-810 ft long).
Planting date:	10-May
Weed management:	Trifluralin was applied preplant incorporated at 1.25 pt/acre across all varieties on 7-April. An over-the-top application of Mon 3539 brand glyphosate at 22 oz/acre with ammonium sulfate (17lbs/100 gallons of spray mix) was made on all varieties at the 4th leaf stage on 7-June. An additional over-the-top application of the same material and rate as above was made on all varieties with Roundup Ready Flex technology on 13-July at the early bloom stage. On the same day, a post-direct application was made on the current generation Roundup Ready “standard” FiberMax 989B2R at the same rate and material as above. One blanket cultivation was made across all the varieties on 16-June.
Irrigation:	LEPA irrigation

Irrigation:	April: 1.50"		May: 1.20"	
	June: 1.76"		July: 3.08"	
	August: 2.64"		September: 0.88"	
	Total irrigation:	11.06"		
Rainfall:	April: 0.20"		July: 0.00"	
	May: 2.00"		August: 3.10"	
	June: 1.20"		September: 0.00"	
	Total rainfall: 6.50"			
	Total moisture: 17.56"			

Insecticides:	Temik was applied at planting at 3.5 lbs/acre. No other insecticides were applied at this site. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.

Fertilizer management:	Preplant fertilizer consisting of 10-34-0 was applied at a rate of 110 lb/acre on 7-April. An additional 210 lbs N/acre using 32-0-0 was fertigated in seven 30 lb N/acre increments during the growing season.
Harvest aids:	Harvest aid chemicals included Prep (6-lb ethephon/gal) at 1.5 pt/acre with Def 6 at 1.0 pt/acre applied at 70 percent open bolls on 27-September, with a follow-up application of Gramoxone Max at 16 oz/acre on 12-October. Both harvest aid treatments were aerially applied.
Harvest:	Plots were harvested on 22-October 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 A&M University Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis, and USDA Commodity Credit Corporation (CCC) Loan values were determined for each variety by plot.

RESULTS AND DISCUSSION:

Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 28.8% for Beltwide Cotton Genetics 9775B2RF, to 34.8% for Stoneville 4554B2RF. Lint yields varied from a low of 1428 lb/acre (Deltapine 117B2RF) to a high of 1708 lb/acre (Beltwide Cotton Genetics 9124B2RF). Lint loan values ranged from a low of \$0.5651/lb (for Croplan Genetics 3020B2RF) to a high of \$0.5813/lb for FiberMax 989B2R. Gross loan value ranged from a high of \$983.19 (Beltwide Cotton Genetics 9124B2RF) to a low of \$817.34 (Deltapine 143B2RF), a difference of \$165.85. Micronaire ranged from a low of 3.5 for Deltapine 143B2RF to a high of 4.0 for Beltwide Cotton Genetics 9124B2RF and Stoneville 4554B2RF. Staple length averaged 36.8 across all varieties with a low of 35.2 (All-Tex Summit B2RF) and a high of 38.4 (Beltwide Cotton Genetics 9975B2RF). Percent uniformity ranged from a low of 80.7 (Dyna-Gro 2242B2RF and Deltapine 143B2RF) to a high of 83.9 (Beltwide Cotton Genetics 9775B2RF). A test average strength of 28.5 g/tex was observed and Croplan Genetics 3020B2RF produced the lowest value (26.3), and Deltapine 117B2RF and FiberMax 989B2R produced the highest (32.1). Elongation percent ranged from a high of 8.5% (Stoneville 4554B2RF) to a low of 5.0% (Deltapine 117B2RF and FiberMax 989B2R. These data indicate that substantial differences can be obtained in terms of gross value/acre due to variety and technology selection. It should be noted that no inclement weather was encountered at this location prior to harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

ACKNOWLEDGMENTS:

Appreciation is expressed to Danny Carmichael, Research Associate - AG-CARES, Lamesa; and John Everitt, Research Associate - Texas Agricultural Experiment Station (TAES), Lubbock, for their assistance with this project and to Dr. John Gannaway - TAES, Lubbock, for his cooperation.

DISCLAIMER CLAUSE:

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

Table 1. Harvest results from the replicated Bollgard II with Roundup Ready Flex "stacked gene" cotton variety demonstration under LEPA irrigation, AG-CARES, Lamesa, TX, 2005.

Variety	Lint turnout	Bur cotton yield	Lint yield	Lint loan value	Gross loan value	
	%	lb/acre	lb/acre	$/lb	$/acre	
Beltwide Cotton Genetics 9124B2RF	32.6	5240	1708	0.5755	983.19	a
Stoneville ST 4554B2RF	34.8	4715	1639	0.5748	942.64	ab
All-Tex Summit B2RF	32.1	5145	1652	0.5680	938.46	ab
Dyna-Gro 2520B2RF	33.0	4746	1565	0.5755	900.59	bc
Croplan Genetics 3020B2RF	31.7	4988	1583	0.5651	894.06	bc
All-Tex Apex B2RF	32.7	4720	1545	0.5755	889.09	bc
Croplan Genetics 3520B2RF	32.3	4667	1509	0.5748	867.60	cd
FiberMax 989B2R*	31.6	4646	1469	0.5813	853.99	cd
Dyna-Gro 2242B2RF	32.6	4546	1481	0.5731	848.58	cd
Beltwide Cotton Genetics 9775B2RF	28.8	4984	1436	0.5790	831.46	d
Deltapine DP 117B2RF	32.4	4405	1428	0.5805	829.05	d
Stoneville ST 6611B2RF	31.8	4511	1433	0.5780	828.25	d
Deltapine DP 143B2RF	32.7	4408	1440	0.5675	817.34	d
Test mean	32.2	4748	1530	0.5745	878.79	
CV, %	2.6	3.7	4.0	0.8	3.7	
OSL	<0.0001	<0.0001	<0.0001	0.0034	<0.0001	
LSD 0.05	1.4	293	103	0.0076	54.15	

* Roundup Ready standard.

For gross loan value, 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 data columns may reflect rounding error.

Value for lint based on CCC loan value from grab samples and ITC HVI results. Color grades set at 21 and leaf grades set at 3.

Table 2. HVI fiber property results from the replicated Bollgard II with Roundup Ready Flex "stacked gene" cotton variety demonstration under LEPA irrigation, AG-CARES, Lamesa, TX, 2005.

Variety	Micronaire	Length	Staple	Uniformity	Strength	Elongation
	units	inches	32nds inches	%	g/tex	%
All-Tex Summit B2RF	3.8	1.10	35.2	82.3	27.0	7.2
All-Tex Apex B2RF	3.8	1.16	37.2	81.7	27.3	6.2
Beltwide Cotton Genetics 9124B2RF	4.0	1.17	37.3	81.7	27.6	6.4
Beltwide Cotton Genetics 9775B2RF	3.9	1.20	38.4	83.9	28.6	6.6
Croplan Genetics 3020B2RF	3.7	1.11	35.5	82.7	26.3	7.3
Croplan Genetics 3520B2RF	3.9	1.13	36.3	82.4	27.2	7.1
Dyna-Gro 2242B2RF	3.8	1.13	36.2	80.7	27.3	7.3
Dyna-Gro 2520B2RF	3.8	1.17	37.3	80.8	27.3	6.5
Deltapine DP 143B2RF	3.5	1.17	37.5	80.7	29.4	5.7
Deltapine DP 117B2RF	3.8	1.16	37.1	81.8	32.1	5.0
FiberMax 989B2R*	3.7	1.16	37.0	82.7	32.1	5.0
Stoneville ST 4554B2RF	4.0	1.13	36.1	82.2	29.0	8.5
Stoneville ST 6611B2RF	3.8	1.17	37.3	82.4	29.5	5.0
Test mean	3.8	1.15	36.8	82.0	28.5	6.5
CV, %	3.3	1.0	1.0	0.7	2.5	4.1
OSL	0.0173	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
LSD 0.05	0.2	0.02	0.6	1.0	1.2	0.4

* Roundup Ready standard.

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:

Replicated Dryland Cotton Systems Variety Demonstration, AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Tommy Doederlein, Randy Boman, Mark Kelley, and Mark Stelter; EA-IPM Dawson/Lynn Counties, Extension Agronomist-Cotton, Extension Program Specialist-Cotton, and Extension Assistant-Cotton.

MATERIALS AND METHODS:

Varieties:	AFD 3602R, All-Tex Patriot RR, Americot 821R, Americot 8120, Beltwide Cotton Genetics 24R, Beltwide Cotton Genetics 245, Deltapine 393, FiberMax 958, Paymaster 2326RR, Stoneville NexGen 3969R
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	3.4 seeds/row-ft in solid planted 40-inch row spacing (John Deere MaxEmerge vacuum planter)
Plot size:	4 rows by length of field (~850 ft)
Planting date:	2-June
Weed management:	Trifluralin was applied preplant incorporated at 1.25 pt/acre across all varieties on 14-April. Roundup Original MAX was applied over-the-top to Roundup Ready varieties on 22-June at 22 oz/acre with ammonium sulfate (17 lbs/100 gallons of spray mix) followed by a post-directed application on 30-August at 24 oz/acre with ammonium sulfate (17 lbs/100 gallons of spray mix). All conventional varieties were cultivated one time on 22-June followed by a blanket cultivation on 13-July. Hand hoeing of conventional varieties was conducted on 29-June followed by a blanket hoeing across all varieties on 29-July by project personnel.
Rainfall:	April: 0.20" July: 0.00" May: 2.00" August: 3.10" June: 1.20" September: 0.00" Total rainfall: 6.50"
Insecticides:	Temik was applied at planting at 3.5 lbs/acre. Denim insecticide at 8.0 oz/acre for Beet armyworms plus 4.0 oz/acre Ammo for bollworms were applied on 29-July. This location is in an active boll weevil eradication zone, but no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	No fertilizers were applied at this site.
Harvest aids:	Harvest aids included Gramoxone Max ground applied at 10 oz/acre on 11-October.
Harvest:	Plots were harvested on 7-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 A&M University Research and Extension Center at Lubbock to determine gin turnouts.

Fiber analysis:	Lint samples were submitted to the International Textile Center 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 $2.45 per cwt. of bur cotton and seed value/acre was based on $100/ton. Ginning costs did not include checkoff.
Seed and technology fees:	Seed and technology fees (Table 4) were determined by variety on a per acre basis using the manufacturer's suggested retail price for seed and appropriate technology fees for Roundup Ready based on 3.4 seeds/row-ft.

RESULTS AND DISCUSSION:

Weed pressure at this site would generally be considered light and consisted mainly of silverleaf nightshade, pigweed, and morningglory spp. "escapes". Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 29.9% for Stoneville NexGen 3969R to 36.4% for Americot 821R. Lint yields varied from a low of 576 lb/acre (Beltwide Cotton Genetics 245) to a high of 715 lb/acre (Americot 821R). Lint loan values ranged from a low of $0.5342/lb to a high of $0.5672/lb for Paymaster 2326RR and FiberMax 958, respectively. After adding lint and seed value, total value/acre ranged from a low of $357.18 for Beltwide Cotton Genetics 245, to a high of $441.68 for FiberMax 958. When subtracting ginning costs and seed and technology fees, the net value/acre among varieties ranged from a high of $344.99 (FiberMax 958) to a low of $260.19 (Paymaster 2326RR), a difference of $84.80. Micronaire values ranged from a low of 3.3 for Stoneville NexGen 3639R to a high of 4.2 for Paymaster 2326RR. Staple length averaged 34.5 across all varieties with a low of 33.6 (Paymaster 2326RR) and a high of 35.1 (FiberMax 958, Deltapine 393, and All-Tex Patriot RR). Percent uniformity ranged from a low of 79.8 (AFD 3602R) to a high of 81.7 (Deltapine 393). Significant differences were observed among varieties for elongation (%), leaf grade, strength, reflectance (Rd) and yellowness (+b). These data indicate that substantial differences can be obtained in terms of net value/acre due to variety and technology selection. It should be noted that no inclement weather was encountered at this location prior to harvest. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

ACKNOWLEDGMENTS:

Appreciation is expressed to Danny Carmichael, Research Associate - AG-CARES, Lamesa; and John Everitt, Research Associate - Texas Agricultural Experiment Station (TAES), Lubbock, for their assistance with this project and to Dr. John Gannaway - TAES, Lubbock, for his cooperation.

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Table 1. Harvest results from the replicated dryland systems variety demonstration, AG-CARES, Lamesa, TX, 2005.

Variety	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Systems cost	Net value	
	%	%	lb/acre	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
FM 958	33.1	46.0	2093	694	963	0.5672	393.50	48.18	441.68	51.29	45.40	344.99	a
Americot 821R	36.4	53.5	1964	715	1050	0.5460	388.47	52.50	440.98	48.11	49.11	343.76	a
DP 393	33.2	46.5	2046	680	951	0.5625	382.43	47.53	429.96	50.13	47.65	332.18	ab
All-Tex Patriot RR	33.5	51.1	1921	643	982	0.5627	363.26	49.11	412.38	47.07	51.82	313.49	abc
Americot 8120	33.9	53.0	1798	610	952	0.5383	327.82	47.62	375.44	44.06	34.98	296.41	abcd
BCG 24R	34.4	49.9	1860	640	927	0.5397	346.09	46.37	392.46	45.56	57.28	289.62	bcd
BCG 245	32.9	47.1	1754	576	827	0.5485	315.86	41.33	357.18	42.97	37.97	276.24	cd
AFD 3602R	30.0	46.1	2033	610	937	0.5450	334.67	46.87	381.54	49.82	55.74	275.99	cd
ST NG 3969R	29.9	47.9	1968	588	944	0.5447	320.15	47.17	367.31	48.22	55.40	263.69	cd
PM 2326RR	32.3	52.2	1801	581	940	0.5342	310.39	47.02	357.41	44.12	53.10	260.19	d
Test average	33.0	49.3	1924	634	947	0.5489	348.26	47.37	395.63	47.13	48.85	299.66	
CV, %	2.5	3.1	8.1	8.5	8.4	2.5	8.4	8.4	8.4	8.1	--	9.8	
OSL	<0.0001	<0.0001	0.1670	0.0450	0.2496	0.0956	0.0117	0.2470	0.0213	0.1659	--	0.0100	
LSD 0.05	1.4	2.6	NS	92	NS	NS	50.22	NS	56.77	NS	--	50.39	

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:
$2.45/cwt ginning cost.
$100/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated dryland systems variety demonstration, AG-CARES, Lamesa, TX, 2005.

Variety	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
FM 958	3.9	35.1	80.3	28.3	3.8	1.3	80.9	7.2	2.7	1.0
Americot 821R	3.9	34.2	80.1	26.1	6.4	1.3	78.9	8.0	2.7	1.0
DP 393	3.9	35.1	81.7	28.2	6.6	1.7	78.8	7.6	3.0	1.0
All-Tex Patriot RR	3.5	35.1	79.9	27.0	5.5	1.0	80.9	7.6	2.0	1.0
Americot 8120	3.9	34.1	80.1	25.8	6.1	1.3	79.8	7.6	3.0	1.0
BCG 24R	3.7	33.7	81.1	28.7	6.2	1.0	81.3	7.5	2.0	1.0
BCG 245	3.4	34.9	80.1	29.1	3.8	1.7	80.6	6.7	3.0	1.0
AFD 3602R	3.9	33.9	79.8	28.2	4.9	1.0	80.1	8.1	2.0	1.0
ST NG 3969R	3.3	35.0	81.0	28.6	5.6	1.0	81.6	7.5	2.0	1.0
PM 2326RR	4.2	33.6	81.6	28.4	5.0	2.3	77.2	8.0	3.0	1.0
Test average	3.8	34.5	80.6	27.8	5.4	1.4	80.0	7.6	2.5	1.0
CV, %	2.6	1.6	0.7	2.5	7.6	32.4	0.6	2.1	--	--
OSL	<0.0001	0.0063	0.0031	0.0001	<0.0001	0.0296	<0.0001	<0.0001	--	--
LSD 0.05	0.2	0.9	1.0	1.2	0.7	0.8	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.

Table 3. Seed and technology expenses* for the replicated dryland systems variety demonstration, AG-CARES, Lamesa, TX, 2005.

Variety	Seed/lb	Seed/bag	Acres planted /bag	Seed fee $/bag	Tech fee $/bag	Total seed and tech fee $/bag	Seed and tech fee $/acre
AFD 3602R	4538	226,900	5.15	64.40	65.80	130.20	25.26
All Tex Patriot RR	4931	246,550	5.60	48.00	71.50	119.50	21.34
Americot 821R	5100	255,000	5.79	35.00	72.90	107.90	18.63
BCG 24R	5094	254,700	5.79	68.50	86.60	155.10	26.80
PM 2326RR	4700	250,000	5.68	56.95	71.50	128.45	22.62
ST NG 3969R	4674	230,000	5.23	64.40	65.80	130.20	24.92
Americot 8120	5000	250,000	5.68	28.00	0.00	28.00	4.93
BCG 245	5000	250,000	5.68	45.00	0.00	45.00	7.92
DP 393	4536	250,000	5.68	99.95	0.00	99.95	17.60
FM 958	4472	223,600	5.08	77.95	0.00	77.95	15.35

*Trial was planted at 44,018 seed/acre in 40-inch rows.

Table 4. Expenses incurred for the replicated dryland cotton systems variety demonstration, AG-CARES, Lamesa, TX, 2005.

	Variety	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed & tech fee/ac	Herb apps	Herb app cost/ac
1	AFD 3602R	64.40	65.80	130.20	25.26	2	9.00
2	All-Tex Patriot RR	48.00	71.50	119.50	21.34	2	9.00
3	Americot 821R	107.90	72.92	180.82	18.63	2	9.00
4	BCG 24R	68.50	86.60	155.10	26.80	2	9.00
5	PM 2326RR	56.95	71.50	128.45	22.62	2	9.00
6	ST NG 3969R	64.40	65.80	130.20	24.92	2	9.00
7	Americot 8120	28.00	0.00	28.00	4.93	0	0.00
8	BCG 245	45.00	0.00	45.00	7.92	0	0.00
9	DP 393	99.95	0.00	99.95	17.60	0	0.00
10	FM 958	77.95	0.00	77.95	15.35	0	0.00
					40" rows 3.4 seed/row-ft 44,018 seed/ac		4.50/ac

Base weed control program		chem cost	app cost	total cost
14-Apr	1.25 pt/acre trifluralin PPI	2.23	4.50	6.73
13-Jul	Blanket cultivation		6.00	6.00
Total blanket weed control program				12.73
Insecticide program				

TITLE:

Replicated Dryland Cotton Seeding Rate and Planting Pattern Demonstration, AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Tommy Doederlein, Randy Boman, Mark Stelter, and Mark Kelley; EA-IPM Dawson/Lynn Counties, Extension Agronomist-Cotton, Extension Assistant-Cotton, and Extension Program Specialist-Cotton.

MATERIALS AND METHODS:

Variety:	AFD 3511R
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	2, 4, and 6 seeds/row-ft in 40-inch row spacing (John Deere MaxEmerge vacuum planter)
Planting patterns:	Each seeding rate was planted in a solid pattern and in a plant 2 rows and skip 1 pattern. For ease of planting, all plots were seeded in a solid pattern and, after seedling emergence, cultivator sweeps were used to destroy seedling plants in the skip row.
Plot size:	16 rows by 260 ft long
Planting date:	2-June
Weed management:	Trifluralin was applied preplant incorporated at 1.25 pt/acre on 20-April. Roundup Original MAX was applied over-the-top on 22-June at 22 oz/acre with 17 lbs/100 gallons of ammonium sulfate. Plots were cultivated one time on 7-July.
Rainfall:	April: 0.20" July: 0.00" May: 2.00" August: 3.10" June: 1.20" September: 0.00" Total rainfall: 6.50"
Insecticides:	Temik was applied at planting at 3.5 lbs/acre. No other insecticides were applied at this site. This location is in an active boll weevil eradication zone, and one application was made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	No fertilizers were applied at this site.
Harvest aids:	Gramoxone Max was ground applied at 6.0 oz/acre on 11-October.
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 A&M University Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center at Texas Tech University for HVI analysis and USDA Commodity Credit Corporation (CCC) Loan values were determined for each plot.

Ginning costs and seed values:	Ginning costs were based on $2.45 per cwt. of bur cotton and seed value/acre was based on $100/ton. Ginning costs did not include checkoff.
Seed and technology fees:	Seed and technology fees (Table 3) were based on the 2, 4, and 6 seed/row-ft and the 2 x 1 skip row pattern (66.6% of solid planting rate) and reported on the land acre basis. This variety was packaged in 50-lb units and in 2005 had 4,434 seed/lb.

RESULTS AND DISCUSSION:

No differences were observed for any of the yield or economic parameters measured with the exception of net value/acre (Table 1). Lint yields varied from a low of 290 lb/acre (2 seed/row-ft solid planting) to a high of 373 lb/acre (2 seed/row-ft 2x1 planting). After adding lint and seed value, total value/acre ranged from a low of $182.71 (2 seed/row-ft solid planting) to a high of $237.11 (2 seed/row-ft 2x1 planting). When subtracting ginning cost and seed and technology fees, the net value/acre ranged from a low of $121.42 (6 seed/row-ft solid planting) to a high of $199.18 (2 seed/row-ft 2x1 planting), a difference of $77.76. No significant differences were observe for all of the fiber properties measured (Table 2). These data indicate that the only significant differences obtained were in terms of net value/acre. This is due mostly to the differential costs associated with planting pattern (solid planting vs. 2x1 skip) and seeding rate down the row. A trend was observed for yield parameters with the 2, 4, and 6 seed/row-ft solid planting patterns to yield numerically less than their skip-row counterparts, however, these differences were not statistically significant. Additional multi-site and multi-year applied research is needed to evaluate seeding rates and planting patterns across a series of environments.

ACKNOWLEDGMENTS:

Appreciation is expressed to Danny Carmichael, Research Associate - AG-CARES, Lamesa; and John Everitt, Research Associate - Texas Agricultural Experiment Station (TAES), Lubbock, for their assistance with this project and to Dr. John Gannaway - TAES, Lubbock, for his cooperation.

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Table 1. Harvest results from the replicated dryland cotton seeding rate and planting pattern demonstration, AG-CARES, Lamesa, TX, 2005.

Treatment	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed-tech fee	Net value	
	%	%	lb/acre*	lb/acre	lb/acre	$/lb	$/acre	$/acre	$/acre	$/acre	$/acre	$/acre	
2 seed/ft 2x1	31.5	54.6	1183	373	646	0.5480	204.82	32.29	237.11	28.99	8.94	199.18	a
4 seed/ft 2x1	30.8	52.8	1183	364	625	0.5363	195.15	31.24	226.39	28.99	17.87	179.53	ab
6 seed 2x1	30.8	53.4	1162	358	621	0.5420	193.82	31.03	224.85	28.48	26.81	169.56	abc
2 seed/ft solid	30.7	52.3	942	290	493	0.5448	158.04	24.67	182.71	23.09	13.40	146.22	bc
4 seed/ft solid	30.6	52.3	995	305	520	0.5420	164.98	26.02	191.00	24.37	26.81	139.82	bc
6 seed solid	30.5	52.0	995	303	517	0.5255	160.16	25.84	186.00	24.37	40.21	121.42	c
Test average	30.8	52.9	1077	332	570	0.5398	179.50	28.51	208.01	26.38	22.34	159.29	
CV, %	3.1	2.1	13.3	13.3	13.2	2.3	14.6	13.2	14.4	13.3	--	16.6	
OSL	0.8006	0.1300	0.2018	0.1526	0.1147	0.3623	0.1876	0.1159	0.1766	0.2015	--	0.0434	
LSD 0.05	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	48.17	

*Per acre values are based on land acres.

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:
$2.45/cwt ginning cost.
$100/ton for seed.
Value for lint based on CCC loan value from grab samples and ITC HVI results.

Table 2. HVI fiber property results from the replicated dryland cotton seeding rate and planting pattern demonstration, AG-CARES, Lamesa, TX, 2005.

Treatment	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
2 seed/ft 2x1	4.2	34.2	81.3	27.7	5.0	1.3	75.9	8.7	3.0	1.0
4 seed/ft 2x1	4.1	34.2	80.9	28.6	5.0	2.3	74.4	8.2	3.7	1.0
6 seed 2x1	3.9	34.0	81.0	28.5	5.1	1.0	75.2	8.6	3.0	1.0
2 seed/ft solid	4.1	34.2	80.5	28.2	4.7	1.0	75.0	8.6	3.3	1.0
4 seed/ft solid	4.0	33.8	80.7	28.2	5.0	1.7	74.9	8.7	3.0	1.0
6 seed solid	3.7	33.6	80.9	29.3	5.4	1.7	74.7	8.7	3.3	1.0
Test average	4.0	34.0	80.9	28.4	5.0	1.5	75.0	8.6	3.2	1.0
CV, %	4.7	1.5	0.7	4.4	4.7	32.2	1.8	2.8	--	--
OSL	0.1298	0.5480	0.6763	0.7237	0.1079	0.0517	0.8172	0.2330	--	--
LSD 0.05	NS	NS	NS	NS	NS	0.9	NS	NS	--	--

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

Table 3. Seed and technology expenses* for the replicated dryland cotton seeding rate and planting pattern demonstration, AG-CARES, Lamesa, TX, 2005.

Treatment	Seeding rate seed/land acre	Seed/lb	Seed/bag	Acres planted /bag	Seed fee $/bag	Tech fee $/bag	Total seed and tech fee $/bag	Seed and tech fee $/land acre
2 seed/ft 2x1	17,425	4,434	221,700	12.72	49.40	64.30	113.70	8.94
2 seed/ft solid	26,136	4,434	221,700	8.48	49.40	64.30	113.70	13.40
4 seed/ft 2x1	34,850	4,434	221,700	6.36	49.40	64.30	113.70	17.87
4 seed/ft solid	52,272	4,434	221,700	4.24	49.40	64.30	113.70	26.81
6 seed 2x1	52,272	4,434	221,700	4.24	49.40	64.30	113.70	26.81
6 seed solid	78,408	4,434	221,700	2.83	49.40	64.30	113.70	40.21
		AFD 3511R		13068 row-ft/acre				seed drop
		4434 seed/lb		for 40" rows				on 2x1 skip
								uses a
								0.6666 factor
								to calculate
								$/land acre

TITLE:

Effect of Temik 15G on Yield for Different Varieties and Irrigation Rates at AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Terry Wheeler, Michael Petty and Wayne Keeling, Associate Professor, Technician II, Professor

MATERIALS AND METHODS:

Planting:	May 11
Treatments:	Temik 15G: 0 and 5 lbs/acre in the furrow at planting
Varieties:	FiberMax 989BR, Paymaster 2280BR, and Stoneville 5599BR
Irrigation:	low, medium, and high, equaled 7.5, 10.0, and 12.5 acre inches/acre in season.
Plot size:	40 ft. x 8 rows, 3 replications/variety x irrigation x nematicide treatment
Harvest:	Oct. 20 – Oct. 22 (4 rows harvested/plot)

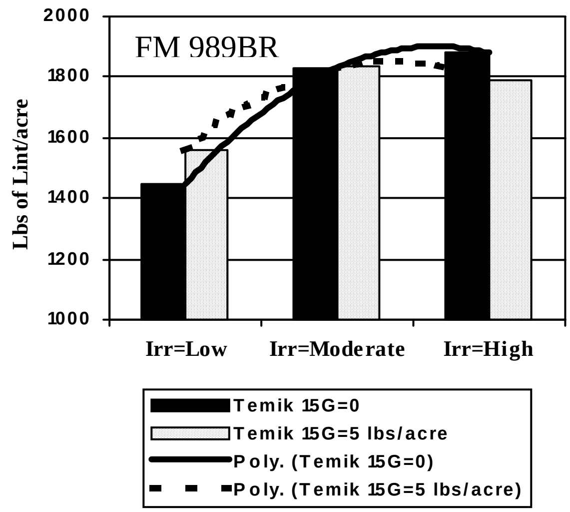
OBJECTIVE:

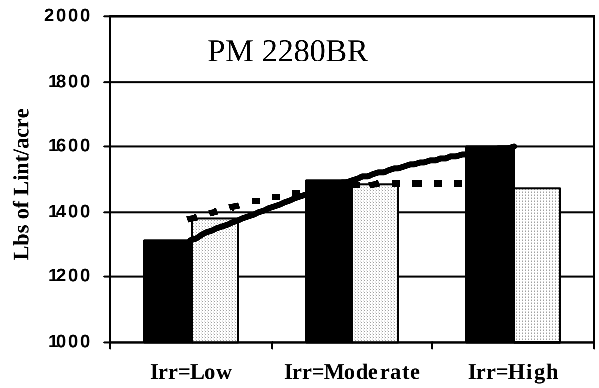
To determine if management of nematodes by Temik 15G is beneficial under a range of irrigation rates and varieties with different yield potentials and nematode tolerances.

RESULTS:

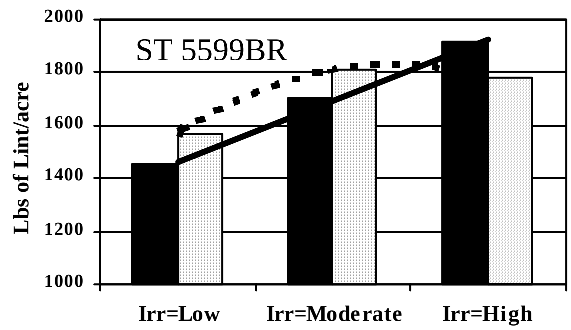
Temik 15G at 5 lbs/acre increased yields consistently at the lowest irrigation rate, but had little effect at the moderate irrigation rate and actually decreased yield at the highest irrigation rate (Fig. 1). Temik 15G at 5 lbs/acre improved yield by 4.9, 7.2, and 7.4% at the lowest irrigation treatment, for PM 2280BR, FM 989BR, and ST 5599BR, respectively. At the moderate irrigation treatment, Temik 15G did not affect yield for FM 989BR and PM 2280BR, and increased yield by 5.8% for ST 5599BR. At the high irrigation treatment, Temik 15G <u>decreased</u> yields by 8.6, 4.9, and 7.8% for PM 2280BR, FM 989BR, and ST 5599BR, respectively. Management with Temik 15G was more important when water was limiting.

Figure 1. Effect of Temik 15G on yield for three varieties and irrigation treatments.





Irrigation treatments of low, moderate, and high equaled 7.5, 10.0, and 12.5 acre-inches/acre applied during the growing season.



TITLE:

Effect of Cover Crop and Temik 15G on Cotton Infected with Root-knot Nematodes at AG-CARES, Lamesa, TX 2005.

AUTHORS:

Terry Wheeler, Michael Petty, James Leser, and Wayne Keeling, Associate Professor, Technician II, Extension Entomologist, Professor

MATERIALS AND METHODS:

Plot dimensions:	40 ft. x 2 rows, 8 replications in a split plot design (cover crop was main affect)
Cover crops:	rye, wheat, oats, and none
Treatments:	Temik 15G: 0, 3.5, and 5 lbs/acre
Cotton variety:	(FiberMax 960B2R) planted: May 9
Nematode sampling:	May 25, June 2, June 7, and July 18
Thrips counts:	May 24, June 1, and June 7
Stand counts:	June 7
Rating of roots for nematode galls:	June 7
Harvest:	October 17

OBJECTIVE:

To see if the presence of a cover crop affected the efficacy of Temik 15G on thrips or root-knot nematode, and cotton yield.

RESULTS:

Thrips counts were similar between cover crop types, except for the no cover crop/Temik=0 treatment on May 24 where there were more thrips than the other cover crop/Temik combinations (Table 1). Thrips and root-knot nematode counts were similar across all cover crops and the no cover crop for all other dates (data not shown). Temik 15G at 3.5 and 5 lbs/acre significantly lowered thrips juvenile counts on 15 days after planting and increased yield compared to the absence of Temik 15G ($P \leq 0.05$) (Table 1). Temik 15G at 3.5 and 5 lbs/acre significantly ($P \leq 0.05$) improved plant stand and reduced the number of root-knot nematode galls at one month after planting (Table 1). In conclusion, the cover crop had no effect overall on thrips or nematode damage. Only Temik 15G had an affect on thrips, nematodes, and yield. Temik 15G at 3.5 and 5 lbs/acre improved yield by 13 and 11%, respectively over the plots that had no Temik 15G.

Table 1. Affect of cover crops on thrips juveniles, yield, plant stand and root-knot nematode galls.

Temik 15G	Thrips juveniles per 5 plants on May 24				Lbs of Lint/acre			
	No cover	oats	rye	wheat	No cover	oats	rye	wheat
0	11.0	3.1	4.0	2.0	1,606	1,621	1,720	1,676
3.5	1.8	1.9	2.6	2.1	1,967	1,881	1,904	1,890
5	4.0	1.6	1.9	0.5	1,864	1,867	1,807	1,863
Temik 15G	**Plants per foot of row**				**Root-knot nematode galls/root**			
	No cover	oats	rye	wheat	No cover	oats	rye	wheat
0	2.8	2.2	2.9	2.6	9.3	6.3	5.6	10.2
3.5	3.2	2.7	3.2	3.1	3.7	1.2	2.7	2.9
5	3.3	2.6	2.9	3.0	2.8	2.0	2.8	1.5

*Temik main affects (3.5 and 5 lbs/acre versus 0 lbs) were significant for yield, plant stand, and root-knot nematode galls. The cover crop x Temik rate interaction was significant ($P = 0.05$) for the May 24 thrips juvenile counts.

TITLE:

Comparison of Alternative Nematicide and Insecticide Treatments Against Temik 15G at AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Terry Wheeler, Michael Petty (TAES, Lubbock), Jim Leser (TCE, Lubbock), and Wayne Keeling (TAES, Lubbock)

MATERIALS AND METHODS:

Planting Date:	May 11, FiberMax 960B2R
Irrigated:	10.0 acre inches of water/acre
Thrips sampled:	May 23, May 31, June 6
Soil sampled for nematodes:	May 23, May 31, June 6, June 13, June 20, July 20
Root sampled for nematode galling:	June 6
Stand counts:	June 6
Plots Size	12-rows wide, 35.5 ft. long, 4 replications in a randomized complete block design.
Harvest:	October 21-22 (4 rows harvested/plot)

OBJECTIVES:

1) Determine if efficacy of Temik 15G was improved by the use of an in-furrow fungicide.
2) Determine if other nematicide products (Avicta or fumigation) or insecticides (Cruiser) were a reasonable alternative for Temik 15G control of nematodes and thrips.

BACKGROUND:

Many nematicides have developed biodegradation problems over time. Biodegradation is when microbes in the soil are able to use a product as a food source. They break the product down more rapidly than it would be in the absence of feeding, and so the product becomes less effective. Since Temik 15G has been in use for many years, we decided to investigate if biodegradation was a problem. We are assaying cotton soils around the High Plains for biodegradation problems. An area at AG-CARES did show some potential for biodegradation. We conducted a test to look at alternatives to Temik 15G, as well as some ways of modifying the soil microbes through a fungicide application.

RESULTS:

The use of the infurrow fungicide Quadris FL did not improve the efficacy of Temik 15G for any measured parameters (i.e. root-knot nematode or thrips counts). There were no significant differences between thrips populations, nematode population densities, galling, and yield, when comparing nematicide or insecticide treatments against the untreated check. The highest yielding treatments were Avicta complete pack (includes Avicta [a nematicide], Cruiser [an insecticide], and Dynasty [three fungicides]), and plots fumigated with Telone II before planting (Table 1). These products improved yields by 113 lbs of lint/acre over the untreated check. Temik 15G at 3.5 and 5 lbs/acre did not perform better than the untreated check (1 and 4% lower yields, respectively).

CONCLUSIONS:

Alternatives for Temik 15G include Avicta complete pack and fumigation with Telone II for nematode control. They both were able to increase yield by 6% (though not significant at P=0.05) over the untreated check. There was little thrips pressure at this site, so the comparison between Temik 15G and Cruiser could not be critically evaluated for insect control. In an area of the field with potential of biodegradation, Temik 15G at 3.5 and 5 lbs/acre did not perform better than the untreated control. In an other area of AG-CARES where biodegradation was not found, Temik 15G at 3.5 and 5 lbs/acre did improve yields over the untreated check.

Table 1. Comparison of nematicide and insecticide products on cotton yield in a field infested with root-knot nematode.

Products	Rate	lbs of lint/acre
none		1,880 ab
Temik 15G (T)	T=3.5 lbs/a	1,924 a
Temik 15G	T=5 lbs/a	1,717 b
Cruiser 5FS (C) + Quadris FL (Q)	Q=5.2 oz/a, C=0.34 mg ai/seed	1,824 ab
Temik 15G + Quadris FL	T=3.5 lbs/a, Q=5.2 oz/a	1,805 ab
Temik 15G + Quadris FL	T=5 lbs/a, Q=5.2 oz/a	1,879 ab
Avicta 4.17FS (A) + Cruiser 5FS	A=0.15 mg ai/seed, C=0.34 mg ai/seed	1,993 a
Telone II (Tel) + Cruiser 5FS	Tel=3 gal/a, C=0.34 mg ai/seed	1,993 a

*Dynasty 0.83FS at 0.03 mg ai/seed, a seed treatment fungicide was included on all treatments.

TITLE:

The Impact of Vydate C-LV Applied at Different Times and Rates Combined with Temik 15G or Avicta Complete Pack at AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Terry Wheeler and Michael Petty, Associate Professor and Technician II (funded by Dupont [Eric Castner].

MATERIALS AND METHODS:

Planted:	May 9
Variety:	FiberMax 960B2R
Irrigation:	10.0 acre inches/acre
Soil sampling for nematodes:	July 20
Vydate application dates:	May 27, June 24, July 1
Plot size:	8 rows x 40 ft. long, with 4 rows harvested, and 4 replications in a randomized complete block design.
Harvest:	October 17 (4 rows harvested)

RESULTS:

The test yielded 3.9 – 4.4 bales, with no significant differences between treatments with respect to yield or nematode counts (Table 1). There were high levels of root-knot nematode present, but they clearly were not detrimental to cotton growth and yield. Plant stands were lower for the seed treated with Dynasty + Cruiser + Avicta than for seed treated with either Dynasty alone, or Dynasty + Cruiser (Table 1). However, plant stands were still high enough to produce maximum yields.

Table 1. Impact of Vydate, Temik 15G, Cruiser, and Avicta Complete Pack on cotton.

Cruiser	Avicta	Temik 15G lbs/acre	Vydate CLV applications (oz/acre) at different times: 2-leaf stage	pinhead size square	1-wk later	Lbs of lint/acre	Plants per ft. of row	Root-knot nematode/ 500 cm^3 soil (midseason)
+	-	0	0	0	0	2,116	3.1 a	14,490
+	-	0	17	0	0	1,956	3.1 a	10,080
+	-	0	8.5	10.7	10.7	1,975	3.2 a	12,990
+	+	0	0	0	0	1,905	2.4 b	18,480
+	+	0	0	10.7	10.7	1,923	2.7ab	11,220
-	-	3.5	0	0	0	1,893	3.0 a	9,870
-	-	3.5	0	10.7	10.7	1,977	3.1 a	26,970
-	-	0	0	0	0	1,971	3.1 a	9,090

*All seed was treated with the fungicide Dynasty 0.83 FS at 0.03 mg ai/seed. Cruiser 5FS was applied at 0.34 mg ai/seed. Avicta complete pack contained Dynasty (3.9 oz/100 lb seed) + Cruiser (0.34 mg ai/seed) + Avicta 4.17FS at 0.15 mg ai/seed.

TITLE:

Effect of Fungicide Seed Over-Treatments and In-Furrow Fungicides on Rhizoctonia Seedling Disease at AG-CARES, Lamesa, TX 2005.

AUTHORS:

Terry Wheeler, Michael Petty, and Tom Isakeit, Associate Professor, Technician II, and Associate Professor

MATERIALS AND METHODS:

Planting: May 9, FiberMax 960B2R.
Treatments: Base seed treatment on all seed: RTU Baytan-Thiram + Argent 30 + Allegiance Fl (3 + 1 + 0.75 oz/100 lb seed).
Plot size: 35.5 ft. x 2 rows, with four replications in a randomized complete block design.
Seed density at planting: 4 seed/ft of row.

OBJECTIVE:

Determine if the use of fungicide over-treatments (applied on top of the regular seed treatment) or in-furrow fungicides (applied in a band at planting) improved seedling survival when soil was artificially infested with *Rhizoctonia solani*.

RESULTS:

The infurrow fungicides of Quadris Fl, Terrachlor Super X, and Reason Fl + Rovral Fl had the best plant stands and yields. Ridomil Gold EC + Rovral Fl did not have as good a plant stand or yield as the other infurrow fungicides. The overtreatments of Dynasty CST 125 or Demosan had better plant stand and yield than the base seed treatment alone. The best of the infurrow treatments were better than the best of the overtreatments.

Fungicide Treatment	Rates of fungicides (fl. oz/acre)	Plants/ft. of row	Lbs of Lint/acre
Quadris Fl (infurrow)	5.2	1.7 a	1,931 a
Terrachlor Super X (infurrow)	65 (4 pints)	1.7 a	1,944 a
Reason Fl+ Rovral Fl(infurrow)	6.5 + 6.5	1.4 ab	2,008 a
Ridomil Gold EC + Rovral Fl(infurrow)	1.96 + 6.5	1.2 b	1,405 b
Dynasty 125 CST (overtreatment)	3.9 oz/100 lb seed	1.0 b	1,691 ab
Demosan (overtreatment)	10.5 oz/100 lb seed	1.0 b	1,593 b
Protege Fl(overtreatment)	0.6 oz/100 lb seed	0.4 c	967 c
*Base seed treatment		0.3 c	704 c

*All seed in the test received the base treatment (RTU Baytan-Thiram + Argent 30 + Allegiance Fl (3 + 1 + 0.75 oz/100 lb seed)).

TITLE:

Effects of Preplant Applications of Clarity, 2,4-D, and Distinct on Cotton Growth and Yield at AG-CARES, Lamesa, TX, 2005.

AUTHORS:

John Everitt and Wayne Keeling, Research Associate and Professor

MATERIALS AND METHODS:

Plot Size:	4 rows by 30 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Planting Date:	May 6, 2003, 2004, and 2005
Variety:	Paymaster 2326 RR
Application Dates:	April 8, 2003, 2004, and 2005(4 weeks before planting)
	April 21, 2003, 2004, and 2005(2 weeks before planting)
	April 28, 2003, 2004, and 2005(1 week before planting)
Rainfall in-season:	8.6 " (2003), 6.5 " (2004), and 7.8" (2005)
Irrigation in-season:	12 " (2003 and 2004) and 11.5" (2005)
Harvest Date:	October 13, 2003, November 16, 2004, and October 19, 2005

RESULTS AND DISCUSSION:

Conservation tillage systems, which cotton producers on the Texas Southern High Plains have used successfully for several years, have created new weed problems including horseweed (*Conyza canadensis*) and Russian thistle (*Salsola iberica*). Herbicides that control these weeds such as 2,4-D, Clarity, and Distinct all have current label restrictions limiting their use in cotton. The objectives of this study were: to evaluate cotton injury and yield from Clarity, 2,4-D, and Distinct applied 4,2,and 1 week(s) before planting (WBP); and to determine the minimum interval between application and planting to apply these herbicides without effecting yield.

Clarity at 0.125 lb ai/A and 0.25 lb ai/A, Distinct at 0.088 and 0.175 lb ai/A, and 2,4-D at 0.50 lb ai/A were applied 4,2, and 1 WBP. Cotton injury ratings were recorded at monthly intervals during the growing season. Plots were mechanically harvested in mid-October for both years. Samples were collected and ginned to calculate lint yield per acre.

No injury was observed in any year when 2,4-D was applied at any preplant interval (Table 1). Clarity applied 2 WBP resulted in injury <5%; however, significant crop injury resulted from the high rate of Clarity applied 1 WBP in all years. Distinct applied 1 or 2 WBP resulted in significant cotton injury in 2003; however, in 2004 and 2005 only the high rate caused significant cotton injury. Cotton yields ranged from 750 to 925 lbs lint/A, and no differences in yield were recorded from any treatment in 2003 (table 2); however, in 2004, cotton yields ranged from 800 to 1200 lbs lint/A, and the high rate of Distinct applied 1 or 2 WBP as well as Clarity at 0.25 lb ai/A applied 1 WBP reduced yields. In 2005, cotton yields ranged from 1204 to 1034 lbs lint/A, and no differences in yield were recorded form any treatment. In 2003, above average heat unit accumulation and excellent fall conditions and in 2005, above average temperatures in the fall appeared to allow cotton to compensate for early season injury.

Although injury observed in 2003 and 2005 did not result in yield reduction, similar injury levels reduced yield in 2004. The timing of rainfall or irrigation must be considered in conjunction with the interval between herbicide application and planting. Clarity or Distinct are not registered for preplant use in cotton. 2,4-D should not be applied within 4 weeks of expected cotton planting date.

Table 1. Cotton injury and stand as affected by Clarity, 2,4-D, and Distinct applied preplant in 2005.

Treatment	Timing	Rate (prod./A)	Cotton Injury (%)				Cotton Stand(#/m)
	WBP		May 19	Jun 1	Jul 21	Aug 18	May 19
Non-treated	---	---	0	0	0	0	7
Clarity 4L	4	4 oz	0	0	0	0	7
Clarity 4L	4	8 oz	0	0	0	0	8
Distinct 70 WG	4	2 oz	0	0	0	0	8
Distinct 70 WG	4	4 oz	0	0	0	0	9
2,4-D 4EC	4	1 pint	0	0	0	0	9
Clarity 4L	2	4 oz	0	3	3	2	7
Clarity 4L	2	8 oz	0	3	0	0	8
Distinct 70 WG	2	2 oz	10	17	0	0	7
Distinct 70 WG	2	4 oz	20	27	7	7	7
2,4-D 4EC	2	1 pint	0	0	0	0	7
Clarity 4L	1	4 oz	10	20	10	8	7
Clarity 4L	1	8 oz	20	40	5	3	7
Distinct 70 WG	1	2 oz	17	20	0	0	7
Distinct 70 WG	1	4 oz	50	43	18	15	4
2,4-D 4EC	1	1 pint	0	0	0	0	8
LSD $_{(0.05)}$			16	18	11	10	2

Table 2. Cotton yield as affected by Clarity, 2,4-D, and Distinct applied preplant in 2003, 2004, and 2005.

Treatment	Timing	Rate (prod./A)	Cotton Yield (lbs lint/A)		
	WBP		2003	2004	2005
Non-treated	---	---	932	1197	1114
Clarity 4L	4	4 oz	820	1220	1068
Clarity 4L	4	8 oz	818	1183	1197
Distinct 70 WG	4	2 oz	890	1127	1104
Distinct 70 WG	4	4 oz	834	1029	1145
2,4-D 4EC	4	1 pint	850	1179	1204
Clarity 4L	2	4 oz	889	1210	1069
Clarity 4L	2	8 oz	753	1135	1078
Distinct 70 WG	2	2 oz	865	1029	1164
Distinct 70 WG	2	4 oz	777	897	1063
2,4-D 4EC	2	1 pint	920	1230	1085
Clarity 4L	1	4 oz	797	1241	1086
Clarity 4L	1	8 oz	868	932	1034
Distinct 70 WG	1	2 oz	908	1075	1154
Distinct 70 WG	1	4 oz	749	787	1038
2,4-D 4EC	1	1 pint	862	1164	1087
LSD $_{(0.05)}$			NS	196	NS

TITLE:

Cotton Recrop Tolerance to Preemergence Herbicides Applied Before Crop Failure at AG-CARES, Lamesa TX, 2005.

AUTHORS:

Peter Dotray, Todd Baughman, Wayne Keeling, Lyndell Gilbert, Professor, Associate Professor, Professor, Technician II.

MATERIALS AND METHODS:

Plot Size:	2 rows by 35 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Original Planting Date:	May 10 (cotton, FM 989 B2R)
Application Date:	May 10 for cotton preemergence herbicides
Crop Destruct Date:	June 1
Replant Planting Date:	June 7 (cotton, PM 2280 BG/RR)
Harvest Date:	October 18

RESULTS AND DISCUSSION:

Recrop after crop failure is a difficult decision, especially if soil applied residual herbicides were used in the previous crop. A second decision is whether or not to rework the planting beds prior to replanting. The objective of this study was to examine cotton tolerance when planted in a recrop situation following a cotton failure due to weather (hail, wind, etc.). The original cotton was planted on May 10. At planting, Prowl, Staple, Dual Magnum, Caparol, or Caparol plus Staple were broadcast applied and activated with 0.4 inches of overhead irrigation water within 72 hours of planting. The cotton was terminated using paraquat on June 1 to simulate an unfortunate weather event. Cotton was replanted on June 7 to beds that were either reworked or cotton was planted directly into existing beds. Regardless of tillage, cotton injury following Prowl and Caparol never exceeded 7%. In the plots treated with Dual Magnum and not tilled between cotton plantings, replanted cotton injury ranged from 77% early-season and decreased to 27% near harvest. In Dual Magnum plots tilled between cotton plantings, replanted cotton injury ranged from 40% to 45% early- and mid-season and decreased to 18% near harvest. In plots treated with Staple and not tilled, replanted cotton was injured 17 to 40% early- to mid-season, and injury decreased to 2% near harvest. In Staple treated plots that were tilled, replanted cotton injury ranged from 22 to 40% early- and mid-season, and decreased to 2% late-season (2%). Similar injury was observed following Staple and not tilled between plantings. Reducing the rate of Staple and adding Caparol decreased cotton injury compared to the full rate of Staple alone, but injury was still apparent in the untilled (up to 22%) and tilled (up to 30%) plots. Cotton lint yield following Dual Magnum, Staple, and Staple plus Caparol in the non-tilled recrop plots were reduced relative to the non-treated control (which yielded 1130 pounds lint per acre). Similarly, in the plots tilled between cotton plantings, Dual Magnum, Staple, and Staple plus Caparol reduced cotton yield relative to the non-treated control (which yielded 1048 pounds lint per acre). Dual Magnum was the most injurious to replanted cotton following cotton regardless of tillage.

Table 1. Cotton recrop tolerance and yield following herbicides applied preemergence before crop failure at AG-CARES, Lamesa TX in 2005.

Treatment	Tillage after crop destruct	Rate (lb/A)	Rate (prod./A)	Cotton Injury (%)				Yield (lb/A)
				Jun 20	Jul 5	Aug 2	Sep 20	
Untreated	none	---	---	0	0	0	0	1130
Prowl 3.3 EC	none	0.5	1.2 pt	0	0	0	0	1091
Staple 85 WP	none	0.063	1.2 oz	22	40	17	2	920
Dual Magnum 7.62 EC	none	1.0	1 pt	77	68	50	27	591
Caparol 4L	none	0.8	1.6 pt	0	0	0	0	1091
Caparol + Staple	none	0.8 + 0.032	1.6 pt + 0.6 oz	12	22	13	2	939
CV				16	39	39	41	8
$LSD_{(0.10)}$				5	13	8	3	116
Untreated	yes	---	---	0	0	0	0	1048
Prowl 3.3 EC	yes	0.5	1.2 pt	0	0	0	0	1023
Staple 85 WP	yes	0.063	1.2 oz	27	40	22	2	818
Dual Magnum 7.62 EC	yes	1.0	1 pt	47	48	40	18	723
Caparol 4L	yes	0.8	1.6 pt	0	0	0	0	1045
Caparol + Staple	yes	0.8 + 0.032	1.6 pt + 0.6 oz	5	30	18	5	942
CV				66	27	54	69	6
$LSD_{(0.10)}$				13	8	13	4	85

TITLE:

Chaperone Plant Growth Regulator Replicated Demonstration, AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Tommy Doederlein, Mark Kelley, Randy Boman, and Mark Stelter; EA-IPM Dawson/Lynn Counties, Extension Program Specialist-Cotton, Extension Agronomist-Cotton, and Extension Assistant-Cotton.

MATERIALS AND METHODS:

Variety:	Stoneville 5599BR
Experimental design:	Randomized complete block with 4 replications
Plot size:	4 40-inch rows x 200ft
Planting date:	9-May
Treatment date:	21-July (early bloom)
Treatment method:	A Lee Spider sprayer adjusted to apply 15 gallons/acre (gpa) of total spray volume was used to apply treatments.
Treatments:	A single rate of Chaperone PGR (5 oz/acre) was used in various combinations of two different carrier water types. One source was from the Ag-CARES center pivot irrigation water and the other was reverse osmosis water obtained from the Texas A&M University Research and Extension Center greenhouse complex. Additional treatments included the use of NZn foliar fertilizer applied at 0.5 gallon/acre. An untreated control was also included.
Harvest:	Plots were harvested on 24-October 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.
Harvest aids:	Harvest aids included Prep (6-lb ethephon/gal) at 1.5 pt/acre with Def at 1.0 pt/acre applied at 70 percent open bolls on 27-September, with a follow-up application of Gramoxone Max at 16 oz/acre on 10-October. Both harvest aid treatments were aerially applied.
Gin turnout:	Grab samples were taken by plot and ginned at the Texas A&M University Research and Extension Center at Lubbock to determine gin turnouts.

RESULTS AND DISCUSSION:

Various papers published in the Beltwide Cotton Conference Proceedings have indicated that cotton lint yield responses have been obtained by researchers when investigating Chaperone PGR. Increased yields ranging from 9-16% (up to 274 lb/acre in certain trials) have been reported by Fernandez, Townsend, Oosterhuis, and Bynum. Chaperone has been formerly marketed as Atonik and ARYSTA and contains the following active ingredients: sodium p-nitrophenolate, 0.30%; sodium o-nitrophenolate, 0.20%; sodium 5-nitroguaiacolate, 0.01%. It is believed that these phenolic compounds may play a central role in secondary metabolism, defense mechanisms, mechanical support, and allelopathy. No statistically significant increases in lint yields were observed due to Chaperone PGR application (Figure 1). The use of reverse osmosis (ROH2O) water did not provide any benefit when compared to the center pivot (PH2O) water source. Additionally, there was no yield benefit to application of NZn foliar fertilizer either by itself, or in combination with Chaperone with either water source. Likewise, no statistically significant differences were observed for lint turnout, HVI fiber properties, or Commodity Credit Corporation (CCC) Loan value at this site (data not presented).

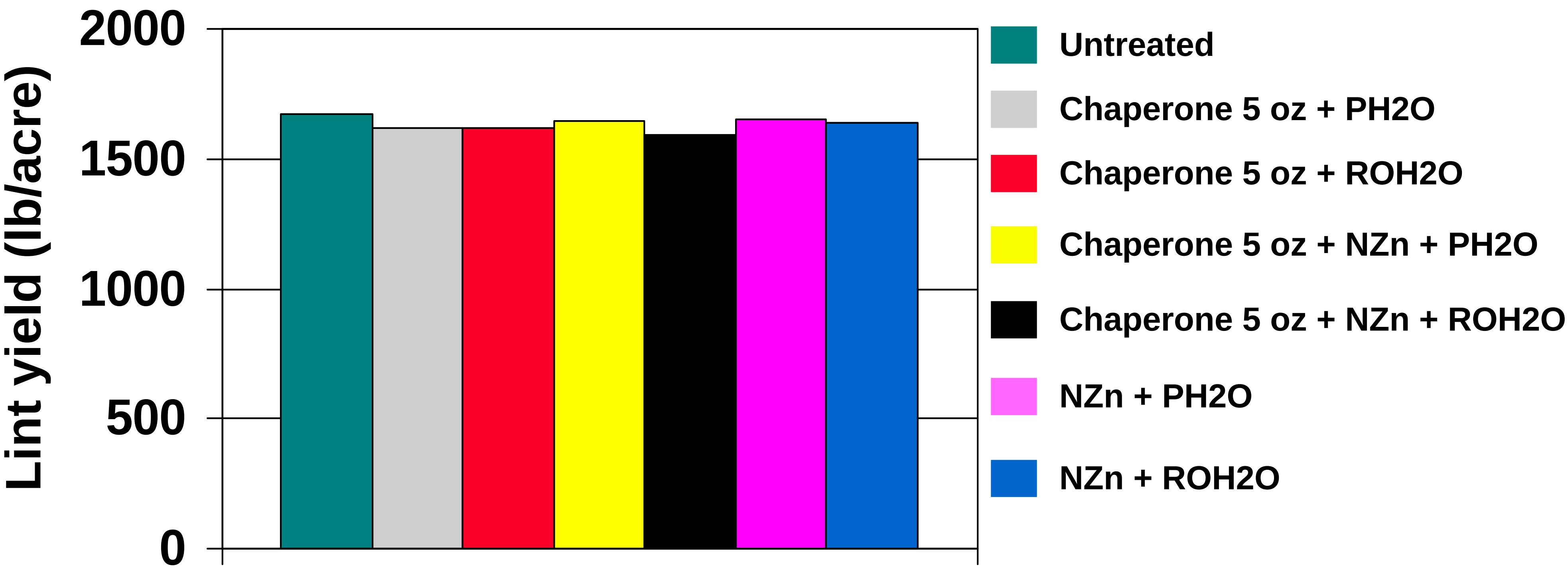
ACKNOWLEDGMENTS:

Appreciation is expressed to Danny Carmichael, Research Associate - AG-CARES, Lamesa; and John Everitt, Research Associate - Texas Agricultural Experiment Station (TAES), Lubbock, for their assistance with this project and to Dr. John Gannaway - TAES, Lubbock, for his cooperation.

DISCLAIMER CLAUSE:

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

Figure 1. Lint yield results from the 2005 Dawson County (Ag-CARES) replicated LEPA irrigated Chaperone demonstration.



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TITLE:

Peanut Tolerance to Prowl and Sonalan Applied Preemergence and Incorporated by Irrigation at AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Peter Dotray, Wayne Keeling, John Everitt, Lyndell Gilbert, Professor, Professor, Research Associate, Technician II.

MATERIALS AND METHODS:

Plot Size:	4 rows by 30 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Planting Date:	April 26
Variety:	Tamrun OL 02
Application Dates:	Preemergence application on April 26
Initial irrigation:	0.5-inches on April 19
Rainfall (May to Oct):	11.0 inches
Irrigation in-season:	16.7 inches
Digging Date:	October 29
Harvest Date:	November 7

RESULTS AND DISCUSSION:

Prowl 3.3 EC (pendimethalin) and Sonalan 3 EC (ethalfluralin) are two dinitroaniline herbicides registered for use in peanut. Recent interest in reduced till and no-till systems has raised questions about rates and methods of incorporation when using the dinitroaniline herbicides. In cotton, Prowl and Treflan (trifluralin) may be surface applied followed by water incorporation or they may be used in chemigation applications. In peanut, there is interest to use Prowl and Sonalan in a similar manner. Peanut tolerance to dinitroaniline herbicides that were mechanically incorporated has been studied in the past; however, little information exists regarding peanut tolerance to these herbicides when applied preemergence and incorporated by irrigation. The objective of this research was to examine peanut tolerance to Prowl and Sonalan at 2, 3, and 4 pints and incorporated immediately with irrigation water. All plots were kept weed-free to insure that any visual injury or yield reduction could be attributed to the herbicide treatment and not weed competition. This was the third and final year of this study.

In 2005, Sonalan at 4 pints caused up to 5% peanut injury (Table 1). This injury was greater than or equal to all other treatments. Canopy height and width was not affected by any herbicide treatment. Peanut yield ranged from 4825 to 5667 pounds per acre and was not affected by any herbicide treatment (Table 1). In 2004, Prowl at 4 pints caused up to 8% visual peanut injury on Jun 10, but this injury decreased to 3% near the end of the growing season. Sonalan at 3 and 4 pints injured peanut early and mid-season (4 to 8%), but no injury was observed at harvest. Sonalan at 4 pints reduced canopy width mid-season, but no canopy reduction was observed at harvest. Plots treated with Prowl or Sonalan produced 5376 to 6369 pounds per acre and were not different compared to the untreated check, which yielded 5992 pounds per acre. In 2003, no visual peanut injury or canopy width reductions were observed throughout the growing season following Prowl or Sonalan applied at any rate when compared to the untreated check. Plots treated with Prowl or Sonalan produced 4041 to 4809 pounds per acre and were not reduced when compared to the untreated check, which yielded 4011 pounds per acre. According to the current Sonalan label, this herbicide can not be chemigated in peanut, but mechanical incorporation is allowed. Prowl EC is labeled for mechanical incorporation, chemigation (0.5 to 0.75 inches of water during the first sprinkler set), and surface applications followed by 0.5 to 0.75-inches of water. Prowl H_2O, which was not used in this test, may be applied preplant incorporated, through chemigation, and applied preemergence in peanuts grown under overhead irrigation. These results (2003-2005) indicate Prowl and Sonalan may be safely applied and incorporated by irrigation water without yield loss. Currently, only Prowl may be applied in this manner.

Table 1. Peanut injury and yield as affected by Prowl and Sonalan applied preemergence and activated by 0.50-inch of irrigation immediately after application in 2005.

Treatment	Rate (lb ai/A)	Rate (prod./A)	Peanut Injury (%)				Canopy Height (in.) Jun 2	Canopy Width(in.) Jun 2	Yield (lb/A)
			Jun 2	Jun 17	Jul 15	Sep 20			
Non-treated	---	---	0	0	0	0	3.7	4.2	4825
Prowl 3.3 EC	0.825	2 pints	0	0	0	0	3.3	4.1	5231
Prowl 3.3 EC	1.24	3 pints	0	0	0	0	3.4	3.9	5472
Prowl 3.3 EC	1.65	4 pints	2	3	0	0	3.4	3.8	5667
Sonalan 3 EC	0.75	2 pints	0	0	0	0	3.4	3.8	5020
Sonalan 3 EC	1.125	3 pints	0	4	0	0	3.5	4.1	5096
Sonalan 3 EC	1.5	4 pints	5	4	0	3	3.4	3.9	5050
CV									7
$LSD_{(0.10)}$			2	NS	NS	2	NS	NS	NS

TITLE:

Prowl H_2O Applied Postemergence in Peanut at AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Peter Dotray, Wayne Keeling, Lyndell Gilbert, Professor, Professor, Technician II.

MATERIALS AND METHODS:

Plot Size:	2 rows by 30 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Planting Date:	April 26
Variety:	Tamrun OL 02
Application Dates:	Preemergence application on April 28; at-crack (AC) May 12; 4 days after crack (DAC) May 16; 7 DAC May 19
Initial irrigation:	0.5-inches on April 19
Rainfall (May to Oct):	11.0 inches
Irrigation in-season:	16.7 inches
Digging Date:	October 29
Harvest Date:	November 8

RESULTS AND DISCUSSION:

Prowl H_2O is a new formulation of pendimethalin that is registered for use preplant incorporated, preplant surface, preemergence (PRE), early postemergence, at lay-by, and in chemigation systems. In peanut, Prowl H_2O may be applied PPI and PRE (if under an overhead irrigation system). Compared to Prowl EC formulation, Prowl H_20 is more water soluble and should be easier to incorporate into the soil using water following application. The objective of this study was to examine peanut tolerance to Prowl H_20 applied PRE, at-crack (AC), 4 days after crack (DAC), and 7 DAC under weed free conditions. Prowl EC was applied PRE for comparison. Peanut injury following Prowl H_20 at 2 pints did not exceed 4% regardless of time of application. Prowl H_20 at 3 pints injured peanut 4 to 9% when applied 4 and 7 DAC, but no other injury was observed. No injury was observed following Prowl EC applied PRE. At harvest, no peanut injury was observed following any treatment. Peanut yield ranged from 4110 to 5157 pounds per acre (lb/A) and was different from the Prowl EC (4757 lb/A) and the untreated control (4666 lb/A) treatments. This was the first year of a two year study, but initial results suggest that Prowl H_2O may be safely used in peanut.

Table 1. Peanut injury and yield as affected by Prowl H_2O applied postemergence in peanut.

Treatment	Timing	Rate (prod./A)	Peanut Injury (%)					Canopy Width (in.) Jun 2	Yield (lb/A)
			May 26	Jun 2	Jun 17	Jul 15	Sep 20		
Non-treated	---	---	0	0	0	0	0	4	4666
Prowl 3.3 EC	PRE	2.4 pints	0	0	0	0	0	4	4757
Prowl H_2O 3.8	PRE	2 pints	0	0	0	0	0	4	4802
Prowl H_2O 3.8	PRE	3 pints	0	0	0	0	0	4	4080
Prowl H_2O 3.8	AC	2 pints	0	0	0	0	0	4	5374
Prowl H_2O 3.8	AC	3 pints	0	0	0	0	0	4	5043
Prowl H_2O 3.8	4 DAC	2 pints	0	0	0	0	0	4	5178
Prowl H_2O 3.8	4 DAC	3 pints	0	0	4	0	0	4	4953
Prowl H_2O 3.8	7 DAC	2 pints	0	0	3	4	0	4	4546
Prowl H_2O 3.8	7 DAC	3 pints	0	0	9	6	0	3	4110
CV								10	14
$LSD_{(0.10)}$			---	---	3	1	---	NS	NS

TITLE:

Peanut Tolerance to Aim and ET at AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Peter Dotray, Wayne Keeling, Lyndell Gilbert. Professor, Professor, Technican II.

MATERIALS AND METHODS:

Plot Size:	2 rows by 30 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Planting Date:	April 26
Variety:	Tamrun OL 02
Application Dates:	Early postemergence (EP), 51 days after planting (DAP), June 16
	Late postemergence (LP), 119 DAP, August 23
Rainfall (May to Oct):	11.0 inches
Irrigation in-season:	16.6 inches
Digging Date:	October 29
Harvest Date:	November 8

RESULTS AND DISCUSSION:

In 2004, Spartan 4F (chemical name sulfentrazone) was registered for use in the southeast (Alabama, Georgia, North Carolina, South Carolina, Virginia, and Mississippi). Research from south and west Texas indicated that this herbicide injured peanut 50 to 80%. FMC received a federal label for this product, but the label excludes states like Texas where significant injury has been observed. Aim (chemical name carfentrazone) is labeled for use in peanut when applied under a hood. Both sulfentrazone and carfentrazone belong in the PPO family of herbicides. Until 2004, little university data had been collected on the use of Aim postemergence-topical in peanut. Field experiments were conducted in 2005 to evaluate Aim and ET (chemical name pyraflufen-ethyl). ET is another PPO inhibitor manufactured by Nichino America that may be available in the future for use in peanut. At AG-CARES in 2005, Aim and ET were applied at 1.5 and 2.0 ounces per acre. Applications were made 51 and 119 days after planting (DAP). Paraquat and 2,4-DB were used for comparison purposes. Peanut injury was evaluated after each application and yield and quality determined at the end of the growing season. In order to ensure that any plant injury, yield, and quality loss was the result of a herbicide treatment, plots were maintained weed-free.

Visual injury was observed following Aim and ET applied early postemergence (EP) regardless of rate. Injury 14 days after EP treatments ranged from 17 to 30% following Aim applications and 27 to 38% following ET applications. All peanut injury decreased over time, but was still visible at harvest (2 to 6%). Visual injury following Aim and ET applied 119 DAP ranged from 9 to 13% and 12 to 16%, respectively. Peanut yield and grade was not affected by either herbicide or timing of application. These results suggest that visual injury following Aim and ET applied early season is much greater than applications made late season. Although significant visual did occur, no yield loss occurred.

Table 1. Peanut injury and yield as affected by AIM and ET applied early- (EP) and late-postemergence (LP).

Treatment	Timing	Rate (lb ai/A)	Rate (oz/A)	Peanut Injury (%) Jun 29	Jul 15	Aug 10	Sep 6	Sep 20	Yield (lb/A)	Grade (%)
Non-treated	—	---	---	0	0	0	0	0	4255	69
AIM + COC	EP	0.024 + 1%	1.5	17	20	7	6	4	4780	70
AIM + COC	EP	0.032 + 1%	2.0	30	31	12	7	5	4736	70
ET + COC	EP	0.00234 + 0.5%	1.5	27	31	10	6	2	4119	69
ET + COC	EP	0.00313 + 0.5%	2.0	38	38	13	10	6	4434	68
Gramoxone Max + Basagran + NIS	EP	0.1875 + 0.25 + 0.25%	8 + 8	10	23	6	5	0	4660	70
AIM + COC	LP	0.024 + 1%	1.5	--	--	--	9	0	4599	69
AIM + COC	LP	0.032 + 1%	2.0	--	--	--	13	3	3999	68
ET + COC	LP	0.00234 + 0.5%	1.5	--	--	--	12	0	4344	69
ET + COC	LP	0.00313 + 0.5%	2.0	--	--	--	16	5	4104	69
2,4-DB + COC	LP	0.40 + 1%	25.6	--	--	--	7	0	3864	68
CV				28	9	29	19	56	11	2
LSD (0.10)				4	2	2	2	2	NS	NS

TITLE:

Peanut Tolerance to Cobra Herbicide at AG-CARES, Lamesa, TX, 2005.

AUTHORS:

Peter Dotray, Wayne Keeling, Lyndell Gilbert, Professor, Professor, Technician II.

MATERIALS AND METHODS:

Plot Size:	2 rows by 30 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Planting Date:	April 26
Variety:	Tamrun OL 02
Application Dates:	PT 6 LF May 31; 15 days after treatment (DAT) June 16; 30 DAT June 29; 45 DAT July 15; 60 DAT August 2
Initial irrigation:	0.5-inches on April 19
Rainfall (May to Oct):	11.0 inches
Irrigation in-season:	16.6 inches
Digging Date:	October 29
Harvest Date:	November 8

RESULTS AND DISCUSSION:

Cobra (lactofen) is a new postemergence peanut herbicide that was available for use in the 2005 growing season. It may be applied at 12.8 ounces per application and up to two applications may be made per year. Cobra application cannot be made until the peanuts have reached the 6-leaf stage. It has activity on several annual broadleaf weeds including Palmer amaranth (carelessweed) and annual morningglory. Cobra is classified as a contact herbicide, which means that weed size at application is important for effective weed control. Peanut tolerance to Cobra is based on the plants ability to metabolize the herbicide, which often times results in leaf necrosis after application. This type of injury is similar to that observed when Ultra Blazer is used. The objective of this study was to examine peanut tolerance to Cobra under weed-free conditions. Peanut injury following Cobra at 12.5 ounces applied at 6-leaf peanut was as great as 28% on July 15, and decreased to 6% near harvest. Other single applications made throughout the season injured peanut as much as 22%. A sequential application of Cobra at 6-leaf followed by applications made 15, 30, 45, and 60 days later caused up to 33% injury mid-season. Near harvest (Sept 20), no peanut injury exceeded 8%. Peanut yield ranged from 3761 to 4661 pounds per acre (lb/A) and were not different from the untreated control (4243 lbs/A). These results suggest that Cobra will burn peanut leaves after single and sequential treatments, but no yield loss should result from these applications.

Table 1. Peanut injury and yield as affected by Cobra herbicide at AG-CARES, Lamesa TX in 2005 [a].

Treatment	Timing	Rate	Peanut Injury (%)								Yield
		(lb ai/A)	Jun 9	Jun 17	Jun 29	Jul 15	Aug 2	Aug 16	Aug 30	Sep 20	(lb/A)
Non-treated	---	---	0	0	0	0	0	0	0	0	4243
Cobra [b] + COC	6 LF	0.2 + 1%	8	17	20	28	13	10	8	6	4753
Cobra + COC fb Cobra + COC	6 LF fb 15 DAT	0.2 + 1% fb 0.2 + 1%	7	17	22	30	14	9	9	6	4438
Cobra + COC	15 DAT	0.2 + 1%	0	0	13	22	14	5	6	4	4661
Cobra + COC fb Cobra + COC	6 LF fb 30 DAT	0.2 + 1% fb 0.2 + 1%	7	17	15	33	13	10	11	7	4453
Cobra + COC	30 DAT	0.2 + 1%	0	0	0	18	13	5	9	4	4872
Cobra + COC fb Cobra + COC	6 LF fb 45 DAT	0.2 + 1% fb 0.2 + 1%	8	15	18	28	14	10	11	8	3973
Cobra + COC	45 DAT	0.2 + 1%	0	0	0	0	15	7	9	6	3761
Cobra + COC fb Cobra + COC	6 LF fb 60 DAT	0.2 + 1% fb 0.2 + 1%	7	18	20	25	15	9	11	7	4332
Cobra + COC	60 DAT	0.2 + 1%	0	0	0	0	16	9	11	6	3929
CV			8	23	22	11	37	14	26	29	13
$LSD_{(0.10)}$			0.5	3	3	3	7	2	3	2	NS

[a]Abbreviations: 6 LF = 6 leaf
fb = followed by
COC = crop oil concentrate

[b]Cobra at 0.2 lb ai/A = 12.8 fluid ounces/acre

TITLE:

Spanish Peanut Recrop Tolerance to Preemergence Cotton Herbicides after Cotton Failure at AG-CARES, Lamesa TX, 2005.

AUTHORS:

Peter Dotray, Todd Baughman, Wayne Keeling, Lyndell Gilbert, Professor, Associate Professor, Professor, Technician II.

MATERIALS AND METHODS:

Plot Size:	2 rows by 40 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Original Planting Date:	May 10 (cotton, FM 989 B2R)
Application Date:	May 10 for cotton preemergence herbicides
Crop Destruct Date:	June 1
Replant Planting Date:	June 7 (peanut, Tamspan 90)
Digging and Harvest Dates:	September 27 and October 4

RESULTS AND DISCUSSION:

Spanish peanut is a short season peanut relative to the other market types. It is a viable option in environments with reduced heat units and is a good option in replant and recrop situations. The objective of this research was to examine peanut tolerance to herbicides applied preemergence (PRE) in cotton prior to cotton failure. Peanut was planted into the existing beds (no tillage between cotton and peanut planting) or planted into rebedded cotton ground. Cotton was planted on May 10 and the following herbicides were applied at planting: Prowl, Staple, Dual Magnum, Caparol, or Caparol plus Staple. The cotton was terminated using paraquat on June 1. The Spanish variety Tamspan 90 was planted on June 7. Regardless of tillage after the initial crop destruct, peanut injury following Prowl and Caparol did not exceed 10%. Peanut injury following Staple in untilled plots ranged from 52 to 72% early to mid-season, and decreased to 18% on September 20. In plots where beds were reworked, Staple injured peanut 47 to 63% early and mid-season, and 15% on September 20. The reduced rate of Staple plus Caparol injured peanut similar to or less than the full rate of Staple regardless of tillage between plantings (15 to 48% in the stale seedbed plots and 6 to 37% in the rebedded plots). Peanut yield in the stale seedbed plots was reduced 14% in plots treated with Staple, compared to non-treated plot which produced 3425 lb peanut per acre. No differences in yield were noted in plots that received tillage between plantings relative to the non-treated control. Peanut yield ranged from 2507 to 3111 lb/A. Results of this test indicate that Spanish peanut can be safely replanted into ground treated with Prowl, Dual Magnum, or Caparol, but not when Staple had been applied. Peanut injury was not affected by tillage.

Table 1. Peanut recrop tolerance and yield following cotton herbicides applied preemergence before crop failure at AG-CARES, Lamesa TX in 2005.

Treatment	Tillage after crop destruct	Rate lb/A	Rate (Prod/A)	Peanut Injury (%)				Yield (lb/A)
				Jun 20	Jul 5	Aug 2	Sep 20	
Untreated	none	—	---	0	0	0	0	3425
Prowl 3.3 EC	none	0.5	1.2 pt	0	0	3	0	3649
Staple 85 WP	none	0.063	1.2 oz	52	72	53	18	2944
Dual Magnum 7.62 EC	none	1.0	1 pt	3	7	10	0	3895
Caparol 4 L	none	0.8	1.6 pt	0	0	10	0	3940
Caparol + Staple	none	0.8 + 0.032	1.6 pt + 0.6 oz	28	48	37	15	3492
CV				35	45	66	65	8
LSD $_{(0.10)}$				7	14	18	5	397
Untreated	yes	---	---	0	0	0	0	3111
Prowl 3.3 EC	yes	0.5	1.2 pt	0	0	7	0	2820
Staple 85 WP	yes	0.063	1.2 oz	47	63	47	15	2507
Dual Magnum 7.62 EC	yes	1.0	1 pt	7	2	3	5	2451
Caparol 4 L	yes	0.8	1.6 pt	0	0	8	0	3111
Caparol + Staple	yes	0.8 + 0.032	1.6 pt + 0.6 oz	23	37	17	6	2518
CV				28	38	59	58	21
LSD $_{(0.10)}$				5	10	12	4	NS

Detailed Growing Season Climate Data at AG-CARES, Lamesa, TX 2005

Date		Max Temp (°F)	Min Temp (°F)	Max RH %	Min RH %	Avg. Wind Speed mil/hr	PET (in.)	Rain (in.)	Heat Units Cotton	Heat Units Peanuts
May	1	76.10	42.40	79.70	26.70	9.72	0.23	0.00	0.00	10.50
	2	57.90	40.50	97.10	53.60	12.12	0.09	0.00	0.00	1.50
	3	46.00	40.60	98.10	91.30	7.21	0.03	0.05	0.00	0.00
	4	52.30	43.00	99.00	90.60	4.40	0.04	0.00	0.00	0.00
	5	73.40	49.40	99.20	47.80	8.03	0.14	0.00	1.40	9.20
	6	75.40	51.70	94.10	49.00	12.17	0.17	0.01	3.60	10.20
	7	82.90	58.50	92.50	13.40	7.60	0.24	0.09	10.70	15.70
	8	84.60	55.50	97.20	9.00	10.20	0.33	0.00	10.00	15.00
	9	90.50	48.50	65.50	7.50	6.73	0.32	0.00	9.50	17.80
	10	90.50	61.80	89.60	17.90	13.28	0.32	0.00	16.20	21.20
	11	90.70	67.60	87.30	19.40	13.67	0.34	0.00	19.20	24.20
	12	87.00	67.70	85.70	33.30	11.73	0.25	0.00	17.30	22.30
	13	91.00	63.90	87.60	7.00	8.69	0.35	0.00	17.50	22.50
	14	80.00	60.70	87.20	25.90	11.69	0.26	0.00	10.30	15.30
	15	62.50	51.50	91.10	50.30	10.60	0.10	0.11	0.00	3.80
	16	75.80	50.50	96.50	41.70	7.70	0.19	0.00	3.10	10.40
	17	91.60	57.20	89.10	11.80	13.70	0.36	0.00	14.40	19.40
	18	92.00	63.80	82.80	11.80	7.78	0.32	0.00	17.90	22.90
	19	95.30	58.90	87.50	11.80	5.47	0.29	0.00	17.10	22.00
	20	94.40	63.60	93.50	14.70	4.89	0.28	0.00	19.00	24.00
	21	96.20	64.50	81.20	17.10	6.01	0.31	0.00	20.30	24.80
	22	96.90	64.10	74.20	13.80	8.88	0.36	0.00	20.50	24.50
	23	101.20	63.70	69.30	10.10	9.81	0.40	0.00	22.50	24.30
	24	96.20	63.10	70.00	19.30	4.82	0.28	0.00	19.70	24.00
	25	84.70	67.10	93.20	47.10	10.13	0.25	0.00	15.90	20.90
	26	68.70	58.60	93.40	78.00	9.73	0.08	0.12	3.70	8.70
	27	73.90	59.70	96.20	58.70	6.69	0.12	0.00	6.80	11.80
	28	67.20	59.60	96.30	77.00	7.62	0.06	0.32	3.40	8.40
	29	75.60	58.40	96.90	53.90	3.70	0.14	0.00	7.00	12.00
	30	78.90	58.60	96.00	43.80	6.74	0.21	0.00	8.80	13.80
	31	88.10	59.20	95.90	16.90	9.66	0.25	0.00	13.70	18.70
June	1	86.70	57.30	94.40	35.00	7.42	0.25	0.00	12.00	17.00
	2	98.00	63.50	92.60	10.40	9.17	0.33	0.00	20.80	24.20
	3	87.20	61.20	94.80	16.00	10.64	0.31	0.72	14.20	19.20
	4	91.70	64.30	94.20	11.50	6.79	0.31	0.00	18.00	23.00
	5	94.40	64.00	94.70	15.70	8.98	0.31	0.00	19.20	24.20
	6	89.10	63.10	86.90	36.70	11.90	0.27	0.00	16.10	21.10
	7	93.10	68.70	91.90	31.30	10.02	0.27	0.00	20.90	25.90
	8	97.30	68.70	95.60	12.90	9.87	0.34	0.00	23.00	26.80
	9	95.30	70.60	90.30	22.10	12.24	0.34	0.00	22.90	27.80
	10	83.70	69.40	89.10	42.70	14.68	0.22	0.00	16.60	21.60
	11	89.10	67.60	93.30	37.20	11.73	0.28	0.00	18.30	23.30
	12	94.40	69.40	83.10	11.20	9.58	0.33	0.00	21.90	26.90
	13	97.70	67.30	95.50	10.00	7.04	0.35	0.00	22.50	26.20
	14	92.30	69.90	82.30	18.50	10.73	0.32	0.00	21.10	26.10
	15	95.00	65.10	91.70	21.40	9.43	0.33	0.00	20.00	25.00
	16	98.30	70.20	67.30	18.30	9.93	0.37	0.00	24.20	27.60

Detailed Growing Season Climate Data at AG-CARES, Lamesa, TX 2005

Date		Max Temp (°F)	Min Temp (°F)	Max RH %	Min RH %	Avg. Wind Speed mil/hr	PET (in.)	Rain (in.)	Heat Units Cotton	Heat Units Peanuts
	17	102.20	67.00	70.40	11.90	9.95	0.41	0.00	24.60	26.00
	18	105.00	67.40	69.70	6.90	9.31	0.42	0.00	26.20	26.20
	19	99.40	70.20	76.00	23.20	10.56	0.38	0.00	24.80	27.60
	20	93.70	67.90	77.50	26.10	8.13	0.32	0.00	20.80	25.80
	21	91.40	66.00	76.30	20.00	5.81	0.29	0.00	18.70	23.70
	22	92.30	62.30	66.70	16.30	5.20	0.29	0.00	17.30	22.30
	23	92.30	62.80	72.60	16.10	7.88	0.33	0.00	17.50	22.50
	24	92.40	65.90	68.60	18.00	10.31	0.36	0.00	19.20	24.20
	25	90.70	65.30	71.20	22.10	9.36	0.33	0.00	18.00	23.00
	26	91.10	66.20	74.60	21.40	7.88	0.31	0.00	18.70	23.70
	27	93.40	66.70	68.00	23.30	8.25	0.33	0.00	20.10	25.10
	28	93.60	65.70	65.50	22.10	8.18	0.33	0.00	19.70	24.70
	29	94.80	63.40	70.40	19.70	8.92	0.35	0.00	19.10	24.10
	30	97.50	70.00	68.80	20.40	8.96	0.35	0.00	23.80	27.50
July	1	97.50	69.60	80.60	19.50	10.23	0.34	0.00	23.50	27.30
	2	93.80	65.00	86.90	28.40	10.40	0.32	0.00	19.40	24.40
	3	100.90	69.40	77.50	15.50	7.42	0.35	0.00	25.20	27.20
	4	94.70	69.10	74.30	28.80	7.66	0.31	0.00	21.90	26.90
	5	92.50	67.10	73.60	24.50	9.62	0.33	0.00	19.80	24.80
	6	95.40	64.70	80.70	19.50	9.87	0.34	0.00	20.10	24.80
	7	95.30	65.80	71.30	22.50	9.48	0.34	0.00	20.50	25.40
	8	94.20	68.10	88.70	25.40	9.01	0.31	0.00	21.20	26.20
	9	92.00	69.30	80.00	19.80	6.89	0.29	0.00	20.70	25.70
	10	91.70	65.90	82.30	25.40	6.47	0.27	0.00	18.80	23.80
	11	94.70	63.80	85.50	22.60	3.72	0.25	0.00	19.20	24.20
	12	85.70	68.10	87.40	35.20	5.16	0.18	0.07	16.90	21.90
	13	94.20	65.50	92.40	20.70	2.92	0.25	0.00	19.80	24.80
	14	96.60	64.30	90.30	18.20	3.09	0.25	0.01	20.40	24.70
	15	89.20	67.00	91.80	26.30	5.58	0.26	0.00	18.10	23.10
	16	92.70	66.30	85.50	24.10	3.51	0.25	0.00	19.50	24.50
	17	89.20	67.60	87.50	33.40	8.07	0.28	0.00	18.40	23.40
	18	90.80	69.80	84.00	34.70	7.35	0.26	0.00	20.30	25.30
	19	90.20	69.50	82.20	30.10	7.31	0.27	0.00	19.80	24.80
	20	91.30	68.60	77.30	27.70	7.42	0.29	0.00	19.90	24.90
	21	89.10	69.40	79.90	36.80	5.96	0.22	0.00	19.20	24.20
	22	92.10	69.70	81.00	27.30	4.37	0.25	0.00	20.90	25.90
	23	94.50	67.80	79.10	24.70	3.42	0.25	0.00	21.20	26.20
	24	92.90	68.40	87.40	23.60	6.47	0.27	0.00	20.70	25.70
	25	94.40	69.00	88.90	25.80	9.13	0.32	0.00	21.70	26.70
	26	93.10	67.00	95.20	32.40	7.33	0.25	0.13	20.00	25.00
	27	67.70	59.70	96.20	78.80	7.73	0.07	0.52	3.70	8.70
	28	76.40	62.20	93.70	50.00	3.65	0.15	0.00	9.30	14.30
	29	81.60	64.00	95.90	56.40	3.01	0.16	0.00	12.80	17.80
	30	88.90	65.90	95.50	31.50	2.73	0.22	0.00	17.40	22.40
	31	90.50	66.60	93.80	30.50	2.35	0.20	0.00	18.50	23.50

Detailed Growing Season Climate Data at AG-CARES, Lamesa, TX 2005

Date		Max Temp (°F)	Min Temp (°F)	Max RH %	Min RH %	Avg. Wind Speed mil/hr	PET (in.)	Rain (in.)	Heat Units Cotton	Heat Units Peanuts
August	1	87.20	65.50	88.10	29.80	3.34	0.22	0.00	16.30	21.30
	2	88.80	62.80	85.30	30.40	2.95	0.22	0.00	15.80	20.80
	3	91.00	65.00	85.90	29.40	3.96	0.24	0.00	18.00	23.00
	4	89.90	63.50	91.50	30.90	4.44	0.22	0.51	16.70	21.70
	5	80.40	63.80	95.70	55.60	4.56	0.13	0.37	12.10	17.10
	6	86.30	64.70	96.30	43.20	2.28	0.17	0.00	15.50	20.50
	7	85.40	66.80	94.20	42.60	4.00	0.19	0.00	16.10	21.10
	8	84.80	65.80	96.20	49.60	4.90	0.20	0.00	15.30	20.30
	9	87.00	65.90	96.80	48.00	5.05	0.21	0.00	16.50	21.50
	10	87.30	63.60	96.10	40.30	4.20	0.21	0.00	15.50	20.50
	11	86.60	65.90	95.70	39.60	4.72	0.22	0.00	16.20	21.20
	12	87.30	66.70	92.20	41.50	6.55	0.22	0.00	17.00	22.00
	13	85.00	68.20	94.20	49.20	4.79	0.17	0.09	16.60	21.60
	14	70.70	66.00	96.30	88.30	5.56	0.05	0.88	8.30	13.30
	15	73.80	65.40	96.90	82.40	5.23	0.08	0.22	9.60	14.60
	16	83.80	66.20	97.30	52.80	2.23	0.16	0.00	15.00	20.00
	17	86.50	65.40	96.70	51.30	4.76	0.20	0.00	16.00	21.00
	18	88.80	67.30	87.70	45.30	6.11	0.23	0.00	18.00	23.00
	19	87.00	66.90	89.60	45.60	6.03	0.22	0.00	17.00	22.00
	20	86.60	66.80	92.10	45.20	4.69	0.20	0.00	16.70	21.70
	21	87.90	66.80	85.60	38.20	4.62	0.22	0.00	17.30	22.30
	22	89.50	65.00	90.00	33.50	4.21	0.21	0.00	17.20	22.20
	23	89.80	64.30	92.40	30.80	4.45	0.22	0.00	17.00	22.00
	24	90.30	65.10	91.50	32.60	4.98	0.22	0.00	17.70	22.70
	25	91.40	69.10	83.60	33.40	5.36	0.24	0.00	20.20	25.20
	26	91.40	65.00	91.30	28.70	3.65	0.21	0.00	18.20	23.20
	27	91.30	62.70	94.30	32.90	6.46	0.23	0.47	17.00	22.00
	28	83.60	63.80	91.90	44.20	4.95	0.19	0.01	13.70	18.70
	29	84.10	63.00	95.90	39.20	3.73	0.18	0.00	13.50	18.50
	30	87.20	59.20	93.20	26.30	3.37	0.20	0.00	13.20	18.20
	31	89.60	61.60	83.20	27.80	6.80	0.25	0.00	15.60	20.60
September	1	88.50	62.50	82.40	33.10	4.18	0.20	0.00	15.50	20.50
	2	88.00	59.70	89.60	27.70	3.72	0.20	0.00	13.80	18.80
	3	84.50	62.50	91.30	44.10	3.25	0.16	0.00	13.50	18.50
	4	85.60	63.70	91.10	43.20	4.66	0.18	0.00	14.70	19.70
	5	87.00	65.70	92.20	40.00	4.93	0.18	0.01	16.30	21.30
	6	88.10	64.10	84.40	29.70	4.67	0.20	0.00	16.10	21.10
	7	85.80	59.30	88.00	34.00	3.68	0.18	0.00	12.50	17.50
	8	83.70	59.80	82.70	30.20	4.04	0.19	0.00	11.80	16.80
	9	85.70	56.40	80.10	34.90	5.35	0.20	0.00	11.00	16.00
	10	89.00	59.70	90.60	31.30	6.21	0.21	0.00	14.30	19.30
	11	89.60	63.90	90.00	34.50	6.38	0.21	0.00	16.80	21.80
	12	89.80	68.40	88.70	38.40	7.23	0.22	0.00	19.10	24.10
	13	96.00	66.40	87.10	24.90	6.16	0.24	0.00	21.20	25.70
	14	95.30	65.10	85.80	31.70	5.33	0.22	0.00	20.20	25.00
	15	84.50	60.30	95.10	42.20	5.44	0.17	0.00	12.40	17.40
	16	79.40	61.90	92.10	56.70	5.92	0.13	0.00	10.70	15.70

Detailed Growing Season Climate Data at AG-CARES, Lamesa, TX 2005

Date		Max Temp (°F)	Min Temp (°F)	Max RH %	Min RH %	Avg. Wind Speed mil/hr	PET (in.)	Rain (in.)	Heat Units Cotton	Heat Units Peanuts
	17	98.40	66.50	95.30	25.20	7.87	0.28	0.00	22.50	25.80
	18	96.20	70.30	63.80	25.70	6.44	0.26	0.00	23.20	27.70
	19	94.40	65.00	82.00	27.50	5.08	0.22	0.00	19.70	24.70
	20	91.60	62.40	80.10	28.10	3.55	0.19	0.00	17.00	22.00
	21	91.30	55.30	85.40	23.20	3.96	0.20	0.00	13.30	18.30
	22	97.00	57.00	81.50	14.90	3.72	0.21	0.00	17.00	21.00
	23	91.70	57.40	80.90	18.40	4.28	0.21	0.00	14.50	19.50
	24	91.80	57.30	82.60	22.70	2.34	0.17	0.00	14.50	19.50
	25	101.50	60.80	73.30	10.10	4.13	0.24	0.00	21.20	22.90
	26	88.70	58.60	79.40	26.80	6.23	0.22	0.00	13.70	18.70
	27	93.60	56.80	91.50	25.30	3.49	0.18	0.00	15.20	20.20
	28	101.10	60.10	83.70	10.90	7.84	0.31	0.00	20.60	22.50
	29	68.20	51.50	74.00	35.30	6.81	0.14	0.00	0.00	6.60
	30	88.90	51.50	77.80	22.00	4.87	0.19	0.00	10.20	17.00
October	1	94.40	57.20	78.50	13.20	4.14	0.21	0.00	15.80	20.80
	2	86.50	65.10	84.20	36.60	7.23	0.19	0.00	15.80	20.80
	3	87.40	64.40	86.10	35.80	6.87	0.19	0.00	15.90	20.90
	4	87.00	67.90	87.00	35.00	7.19	0.20	0.00	17.50	22.50
	5	88.10	48.30	95.10	34.00	7.61	0.18	0.22	8.20	16.50
	6	48.90	43.30	92.80	76.50	9.57	0.04	0.74	0.00	0.00
	7	64.10	41.90	91.50	44.80	3.51	0.10	0.00	0.00	4.50
	8	71.90	45.40	95.60	52.70	4.21	0.12	0.00	0.00	8.50
	9	67.80	51.40	96.40	65.50	4.82	0.07	0.59	0.00	6.40
	10	75.50	48.10	95.70	23.10	5.45	0.13	0.00	1.80	10.20
	11	73.20	42.30	94.90	27.70	3.62	0.12	0.00	0.00	9.10
	12	79.40	46.00	93.00	19.60	3.45	0.13	0.00	2.70	12.20
	13	69.20	53.00	94.20	46.90	4.02	0.08	0.10	1.10	7.10
	14	75.80	48.50	95.70	37.80	2.44	0.11	0.00	2.10	10.40
	15	73.70	54.60	95.80	45.40	2.88	0.08	0.15	4.20	9.30
	16	78.70	54.00	96.40	42.50	3.02	0.11	0.00	6.30	11.80
	17	81.90	53.50	97.40	40.50	3.61	0.11	0.00	7.70	13.50
	18	87.50	54.80	96.30	24.90	4.60	0.16	0.00	11.20	16.20
	19	89.30	53.80	82.90	15.20	6.76	0.21	0.00	11.50	17.20
	20	75.30	46.20	85.30	26.10	3.05	0.12	0.00	0.80	10.20
	21	77.50	46.20	88.20	22.60	3.01	0.12	0.00	1.90	11.20
	22	75.20	46.50	87.30	35.70	4.96	0.13	0.00	0.90	10.10
	23	56.20	41.20	95.70	41.00	8.84	0.09	0.00	0.00	0.60
	24	61.80	36.00	85.60	21.80	2.39	0.09	0.00	0.00	3.40
	25	75.30	35.60	87.40	25.90	3.94	0.13	0.00	0.00	10.20
	26	77.80	42.90	90.90	26.50	5.33	0.14	0.00	0.30	11.40
	27	63.20	50.20	96.40	65.20	4.73	0.05	0.06	0.00	4.10
	28	66.00	52.50	96.00	56.40	6.85	0.08	0.00	0.00	5.50
	29	71.10	46.20	88.40	52.20	7.18	0.10	0.00	0.00	8.00
	30	77.60	55.60	90.00	28.20	6.16	0.14	0.00	6.60	11.60
	31	64.10	38.60	96.40	21.50	9.81	0.13	0.00	0.00	4.50

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Dawson County Commissioners Court

Sam Saleh, County Judge
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Foy O'Brien, Commissioner, Precinct 4

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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.

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WEATHER INFORMATION

The 2005 crop year for Dawson County was much better than the past few years. Rainfall during the growing season provided farmers with beneficial moisture and potential for high yields. Hailstorms damaged crops in July, August, and September. We harvested 289,711 acres which should produce 366,838 bales. The years total rain fall was 14.07 inches. Heat units for the growing season were below the 72 year long term accumulation by 112 heat units (May - October).

Irrigated crops were above average for most producers, most experienced higher yields than the 2004 crop.

The harvest was extended due to high yields and late maturing cotton. Also, due to these factors, ginning will continue until March or April 2006.

As always we were glad the 2005 crop year was over, and hopefully the 2006 will bring even higher yields and prices.

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 17.74 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 and 1998 (10.12), with less than 10 inches. 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 (29.69). 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 2nd and the first occurrence of 32 degrees in the fall Nov 4th is approximately 216 days.

Lamesa's Freeze Dates for the Past 57 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
AVERAGE	April 2	November 4	216 days

Cotton Crop Heat Unit Calendar for Dawson County - 2005

~~Comparison of the Long Term Average Heat Unit Accumulation~~
with the
2005 Monthly Heat Unit (DD60) Accumulations at Lamesa, Texas

Time Period	May	June	July	August	Sept.	Oct.
1932-05 Long Term Average/Month	334	550	635	599	381	93[A/]
1932-05 Long Term Accumulation	334	884	1,519	2,118	2,499	2,592
1986-05 Long Term Average/Month	356	531	632	571	362	128[B/]
1986-05 Long Term Accumulation	356	887	1,519	2,090	2,452	2,580[B/]
2005 Average/Month	279	546	607	491	462	116
2005 Month Accumulation	279	825	1,432	1,923	2,385	2,501
2005 from May 10	258	804	1,411	1,902	2,364	2,480
2005 From June 1		546	1,153	1,644	2,106	2,222

[A/] 72 Year Average[B/] 18 Year Average Prepared by John Farris

Cotton Heat Unit Requirement

Growth Stage	Accumulated (Test Unit)	Growth Stage	Accumulated (Test Unit)
Planting	0	First Mature Boll	1800
Emergence	75	First Open Boll	1900
First Square	450	5 Percent Mature Bolls	1975
First Bloom	900	95 Percent Mature Bolls	2270

2005 Weather Data*

Average Temperature by Months 2001 through 2005

Temp	2001	2002	2003	2004	2005	Temp	2001	2002	2003	2004	2005
Jan.	38.61	42.31	41.98	55.10	56.74	**July**	83.82	78.60	80.40	78.47	79.57
Feb.	40.68	37.98	37.98	38.26	40.40	**Aug.**	79.92	81.10	80.77	75.95	75.82
Mar.	47.66	48.92	53.35	56.81	49.95	**Sept.**	70.74	70.52	67.85	67.65	72.97
Apr.	61.5	60.77	60.90	55.68	57.68	**Oct.**	62.24	60.24	65.13	62.87	60.74
May	72.10	69.21	71.52	71.77	67.13	**Nov.**	50.52	46.39	49.53	45.68	50.07
June	78.40	75.97	72.45	75.55	75.68	**Dec.**	42.81	41.34	41.63	41.21	41.44

2005 Monthly Average Temperature - 60.68*From Lamesa Reporting Station

Peanut Crop Heat Unit Calendar for Dawson County - 2005
Comparison for the Long Term Average Heat Unit Accumulation with the 2005 Monthly Heat Unit Accumulations at Lamesa, Texas

TIME PERIOD	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1993-05 Long Term Avg/month	219	511	672	761	714	513	238
1993-05 Long Term Accumulation	219	730	1,402	2,163	2,877	3,390	3,628
2005 Average/Month	172	406	682	747	646	604	219
2005 Month Accumulation	172	578	1,260	2,007	2,653	3,257	3,476

A/ 13 Year Average (DD-55, Max 95°F)Prepared by John Farris

Irrigation Schedule for Peanuts Dawson County

		IRRIGATION AND/OR RAIN AMOUNT
	BEFORE PLANTING	WATER SO SOIL MOISTURE ROD WILL REACH MINIMUM OF 3 FT DEPTH RANDOMLY THROUGHOUT FIELD.
	PLANTING TO 25 DAYS AFTER	FOR EMERGENCE ONLY-SHOULD REQUIRE LESS THAN 1" /WEEK
IRRIGATION CAPACITY IS LESS THAN 1"/WEEK	DAY 25 AFTER EMERGENCE	START CONTINUOUS IRRIGATION
IRRIGATION CAPACITY IS 1-1.5" /WEEK	DAY 30 AFTER EMERGENCE	START CONTINUOUS IRRIGATION
IRRIGATION CAPACITY IS GREATER THAN 1.5"/WEEK	DAY 35 AFTER EMERGENCE	START CONTINUOUS IRRIGATION

NOTE:
FROM FRUIT INITIATION UNTIL MAXIMUM SOIL TEMPERATURE IN THE POD ZONE DROPS TO 80 F - IRRIGATE 1.5 TO 2.5"/WEEK

AFTER MAXIMUM SOIL TEMPERATURE DROPS BELOW 80 F - REDUCE IRRIGATION TO INCREASE MATURATION.

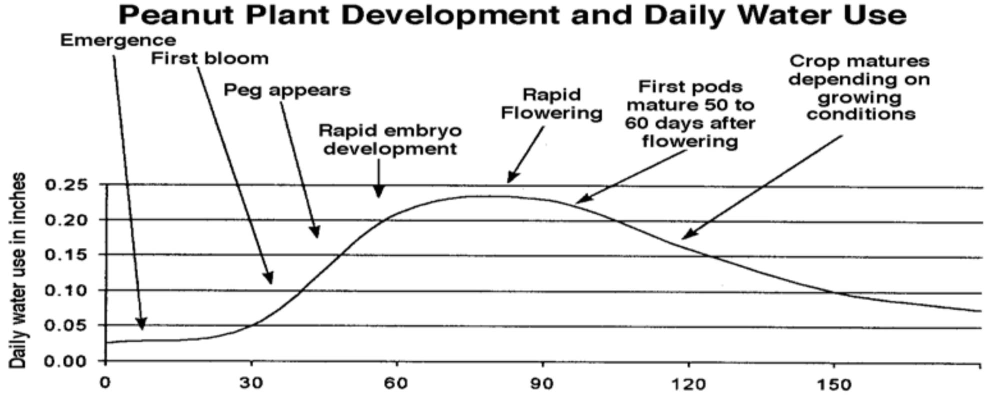
MATURATION PERIOD	110 TO 150 DAYS	IRRIGATE 1"/WEEK

PEANUT GROWTH AND DEVELOPMENT

PLANTING
EMERGENCE (7 TO 21 DAYS)
BLOOM (45 DAYS AFTER EMERGENCE)
PEGS (PENETRATE SOIL 10 TO 14 DAYS AFTER BLOOM)
PODS (START 3 TO 4 DAYS AFTER PEGS HIT THE GROUND)

RUNNERS 155 DAYS AFTER EMERGENCE
VIRGINIA 145 DAYS
SPANISH 140 DAYS
VALENCIA 140 DAYS

Peanut Plant Development and Daily Water Use



Dawson County 74-Year Rainfall Record* 1932-2005

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	9.80	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
AVERAGE	.64	.69	.89	.90	2.27	2.71	2.00	1.75	2.96	1.96	.89	.72	17.74

*From: Lamesa Reporting Station.

DAWSON COUNTY FIRST BALE WINNERS
1947-2005

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
Rocky 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 Youngblood	August 23, 2001
Johnny Montgomery	August 31, 2002
Lonnie Wright	September 9, 2003
Lonnie Wright	September 7, 2004
Theresa Estes	October 4, 2005

COTTON PRODUCTION - 67 YEAR RECORD*

YEAR	PRODUCTION BALES	ACRES	YEAR	PRODUCTION BALES	ACRES
1939	41,500	94,100	1973	315,300	268,500
1940	39,100	127,400	1974	38,800	72,900
1941	57,900	130,200	1975	123,400	237,600
1942	74,260	126,000	1976	244,200	271,400
1943	51,950	129,000	1977	230,000	290,000
1944	55,800	121,000	1978	92,000	271,000
1945	7,150	44,800	1979	243,800	275,000
1946	27,100	111,000	1980	88,000	293,900
1947	102,000	266,000	1981	270,600	316,500
1948	60,400	267,000	1982	153,400	251,200
1949	193,000	318,000	1983	57,800	103,400
1950	96,000	225,000	1984	129,900	225,500
1951	67,000	319,000	1985	147,200	220,000
1952	50,000	361,000	1986	39,000	220,700
1953	12,300	45,000	1987	120,000	227,000
1954	81,164	213,000	1988	204,168	245,244
1955	85,000	185,000	1989	85,515	199,750
1956	82,057	202,000	1990	220,800	221,500
1957	129,000	201,000	1991	99,300	153,500
1958	143,000	202,000	1992	156,800	178,800
1959	152,767	192,084	1993	226,500	237,062
1960	176,756	205,073	1994	140,100	221,900
1961	213,217	221,393	1995	171,700	266,900
1962	145,648	212,330	1996	108,100	112,500
1963	160,483	196,489	1997	213,900	251,800
1964	93,944	156,000	1998	80,800	86,500
1965	153,000	186,354	1999	209,100	258,900
1966	130,000	196,009	2000	81,500	102,700
1967	76,317	113,553	2001	82,000	84,500
1968	182,096	168,554	2002	190,000	216,500
1969	140,159	214,138	2003	191,500	238,000
1970	169,300	221,700	2004	330,200	251,700
1971	169,300	221,700	2005	366,838 (est.)	289,711 (est.)
1972	234,400	215,200			

* 67 Year Average: **Production Bales**: 133,807 / **Acres**: 201,440 / **Yield per acre**: 332

SOME FACTS ABOUT DAWSON COUNTY

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

There are 363,339 acres in crop land, 110,118 acres in the Conservation Reserve Program, 87,207 acres in rangeland and pasture and 17,256 acres in roads, townsites, etc.

The county has approximately 600 center pivot systems and 75,000 total irrigated acres.

Projected estimated gross agricultural income for 2005 is $221,032,400.00

The county should produce around 366,838 bales of cotton for 2005.

Peanut yields average about 3,600 pounds per acre.

ESTIMATED CROP ACREAGE FOR 2005	HARVESTED ACRES
Cotton - Irrigated	59,711
Cotton - Dryland	230,000
Grain Sorghum - Irrigated & Dryland	1,917
Peanut - Irrigated	9,287
Haygrazer	2,977
Wheat - Irrigated & Dryland	14,568
Alfalfa - Irrigated	1,550
Watermelon	45
Grapes - Irrigated	98
Rye	1,677
Sunflower - Dryland	2,395