The Agriculture Program
THE TEXAS A&M UNIVERSITY SYSTEM
Agricultural Research and Extension Center at Lubbock
Route 3, Box 219
Lubbock, TX 79403-9803

On behalf of both the Texas Agricultural Experiment Station (TAES) and Texas Cooperative Extension (TCE), we want to express our thanks to Lamesa Cotton Growers for their fifteenth year of support of the AG-CARES program. This site continues to be an extremely important location for our research and extension scientists to conduct work on sandy soils in West Texas. We are excited about the 20 acres of subsurface drip irrigation that will soon be in place at AG-CARES. It will compliment work being conducted at the Helms Farms near Halfway on heavier soil and provide 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 continues to receive 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, and several businesses in Lamesa. Our federal, state and county elected officials continue to provide strong support for the success of AG-CARES.

There are numerous cotton varieties being offered today in West Texas. The Texas A&M University System is addressing this issue through his large scale variety test at multiple locations across the Southern High Plains. At AG-CARES, we are looking at a few selected varieties to determine their response under low, medium, and high irrigation levels. Preliminary 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, Casey Barrett, and Tommy Doederlein (TCE), and Drs. Wayne Keeling and Mike Schubert (TAES). 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
Texas Cooperative Extension

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LAMESA COTTON GROWERS, INC. 2004

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THE LAMESA COTTON GROWERS WOULD LIKE TO THANK THE FOLLOWING FOR THEIR CONTRIBUTIONS TO THE AG-CARES PROJECT:

Sam Stevens, Inc.
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Cotton Inc. - State Support Program
Bayer CropScience
Monsanto Co.
Delta & Pine Land Seed Co.
Stoneville Seed Co.
Syngenta

TITLE:

Cotton variety performance as affected by irrigation levels at AG-CARES, Lamesa, TX, 2004

AUTHORS:

Wayne Keeling, Randy Boman, and John Everitt, Professor, Extension Cotton Agronomist, and Research Associate

MATERIALS AND METHODS:

Plot Size:	8 rows x 500 ft., 3 replications
Planting Date:	May 3
Varieties:	Paymaster 2280 BR
	Fiber Max 989 BR
	Stoneville 5599 BR
	DeltaPine 555 BR
Herbicides:	Prowl - 3 pt.
	Roundup Weather Max - 22 oz. POST
	Roundup Weather Max 22 oz PDIR
Fertilizer:	125-50-0
Irrigations:	Base = 9.6"
	Low = 7.2"
	High = 12.0"
Harvest Date:	October 19

RESULTS AND DISCUSSION:

A trial was conducted in 2003 and repeated in 2004 to compare effects of three irrigation levels on four cotton varieties. Three "picker" type varieties (FM 989BR, ST 5599 BR, and DPL 555BR) and one stripper varieties (PM 2280BR) were planted on May 3. Plots were machine harvested on October 19 and grab samples were ginned for turnout and fiber quality. Each variety x irrigation plot was 8 rows x 500' with 3 replications. Yields and gross returns increased from low to medium irrigation levels, but were no higher with the high irrigation level. Similar yields (1115-1125 lbs/A) were produced with PM 2280 BR FM 989BR and ST 5599BR when averaged across irrigation levels. Yields, loan value, and gross returns per acre for varieties and irrigation levels are summarized in Table 1.

Table 1. Cotton variety performance as affected by irrigation levels at AG-CARES, Lamesa, TX 2004.

Variety	Irrigation Level	Yield LB/A	Loan Value ¢/lb	Gross Returns $/A
1 PM 2280BR	Low (-25%)	1073 cde	52.20 bc	560 bcd
2 FM 989BR	Low (-25%)	876 f	53.52 a	469 de
3 ST 5599BR	Low (-25%)	860 f	49.60 e	427 e
4 DPL 555BR	Low (-25%)	976 ef	51.52 cd	502 cde
5 PM 2280BR	Base	1235 a-d	53.37 ab	659 ab
6 FM 989BR	Base	1348 a	53.50 a	721 a
7 ST 5599BR	Base	1237 a-d	52.30 bc	647 ab
8 DPL 555BR	Base	968 ef	52.20 bc	505 cde
9 PM 2280BR	High (+25%)	1068 de	53.20 ab	568 bcd
10 FM 989BR	High (+25%)	1273 ab	53.50 a	681 a
11 ST 5599BR	High (+25%)	1258 abc	49.60 e	624 ab
12 DPL 555BR	High (+25%)	1137 b-e	50.87 d	579 bc
LSD (P=.05)		190.0	1.19	100.9
Standard Deviation		112.2	0.70	59.6
CV		10.11	1.34	10.3

1/ June - Sept. Totals: Base 9.6", Low 7.2", High 12"

TITLE:

Replicated Transgenic Cotton Variety Demonstration Under LEPA Irrigation at AG-CARES, Lamesa, TX, 2004.

AUTHORS:

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

MATERIALS AND METHODS:

Varieties:	All-Tex 40801RR, All-Tex 40802RR, AFD 3602RR, Beltwide Cotton Genetics 28R, Deltapine 434RR, Deltapine 488BG/RR, Deltapine 494RR, FiberMax 958LL, FiberMax 960RR, Paymaster 2326RR, Stoneville 2448R, Stoneville 4646B2R, and Stoneville 5599BR
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	4 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:	7-May
Weed management:	Treflan was applied preplant incorporated at 1.25 pt/acre across all varieties on 20-April. No system specific herbicides were applied on the Roundup Ready or Liberty Link varieties due to minimal weed pressure. A blanket cultivation was performed on 3-June.

Irrigation:	LEPA irrigation			
	April: 0.00"		May:	2.75"
	June: 2.90"		July:	3.70"
	August: 1.00"		September:	1.00"
	Total irrigation:	11.35"		
Rainfall:	April: 1.53		July:	2.52"
	May: 0.07"		August:	2.14"
	June: 1.84"		September:	5.86"
	Total rainfall: 13.96"			
	Total moisture: 25.31"			

Insecticides:	No 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 150 lb/acre on 12-April. An additional 100 lbs N/acre using 32-0-0 was fertigated in two 25 lb and one 50 lb N/acre events during the growing season.
Harvest aids:	Harvest aids included Boll'd (6-lb ethephon/gal) at 1.3 pt/acre + Ginstar at 4 oz/acre applied at 70 percent open bolls on 8-October, with follow-up application of Gramoxone Max at 20 oz/acre + ET defoliant at 1.5 oz/acre with COC on 1-November.
Harvest:	Plots were harvested on 10-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 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 loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.25 per cwt. of bur cotton and seed value/acre was based on $125/ton. Ginning costs did not include checkoff.
Seed and tech fees:	Seed and technology fee costs (Table 3) were determined by variety on a per acre basis using the manufacturer's suggested retail price for seed and appropriate technology fees for Bollgard, Bollgard II, and/or Roundup Ready and Liberty Link based on 4 seeds/row-ft.

RESULTS AND DISCUSSION:

Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 27.8% for All-Tex 40802RR, to 34.8% for Stoneville 5599BR. Lint yields varied from a low of 834 lb/acre (All-Tex 40802RR) to a high of 1176 lb/acre (Stoneville 5599BR). Lint loan values ranged from a low of $0.4627/lb to a high of $0.5378/lb for Stoneville 4646B2R and Stoneville 2448R, respectively. After adding lint and seed value, total value/acre ranged from a low of $519.70 for Stoneville 4646B2R, to a high of $706.60 for Stoneville 2448R. When subtracting ginning costs and seed and technology fees, the net value/acre among varieties ranged from a high of $599.05 (Stoneville 2448R) to a low of $406.44 (Stoneville 4646B2R), a difference of $192.61. Micronaire ranged from a low of 2.9 for Deltapine 488BG/RR to a high of 3.8 for Paymaster 2326RR and Stoneville 2448R. Staple length averaged 35.3 across all varieties with a low of 33.7 and a high of 37.0. Percent uniformity ranged from a low of 79.5 (Stoneville 5599BR) to a high of 82.8 (Stoneville 2448R). A test average strength of 28.9 g/tex was observed with Deltapine 434RR producing the lowest value (26.2), and FiberMax 960RR producing the highest (31.8). Significant differences were observed among varieties for elongation (%), reflectance (Rd) and yellowness (+b), however, no differences existed for leaf values. 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 some inclement weather was encountered with low intensity rainfall and low wind events at this location prior to harvest. Picker type varieties experienced some preharvest losses due to these weather conditions. 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 LEPA irrigated replicated transgenic cotton variety demonstration, AG-CARES, Lamesa, TX 2004.

Variety	Lint turnout %	Seed turnout %	Bur cotton yield lb/acre	Lint yield lb/acre	Seed yield lb/acre	Lint loan value $/lb	Lint value $/acre	Seed value $/acre	Total value $/acre	Ginning cost $/acre	Seed-tech fee $/acre	Net value $/acre
ST 2448R	29.9	54.1	3631	1085	1964	0.5378	583.83	122.77	706.60	81.71	25.84	599.05 a
BCG 28R	29.5	50.9	3614	1067	1839	0.5225	558.45	114.94	673.39	81.32	23.87	568.20 ab
DP 434RR	32.1	51.6	3466	1113	1789	0.4988	555.44	111.80	667.24	77.98	32.35	556.91 abc
PM 2326RR	29.2	53.8	3589	1047	1930	0.5049	528.65	120.64	649.30	80.76	20.09	548.44 abc
ST 5599BR	34.8	52.7	3375	1176	1779	0.4712	554.69	111.20	665.89	75.94	46.29	543.66 abc
FM 960RR	30.7	52.8	3664	1124	1935	0.4752	533.84	120.95	654.80	82.44	29.28	543.08 abc
AFD 3602RR	29.5	55.5	3414	1007	1895	0.5007	504.29	118.42	622.71	76.81	24.01	521.89 bc
All Tex 40801 RR	30.4	52.2	3292	1003	1719	0.5105	511.81	107.44	619.25	74.08	25.55	519.62 bc
DP 494RR	30.4	51.3	3419	1039	1755	0.4957	514.33	109.67	623.99	76.92	32.35	514.73 bc
DP 488BG/RR	29.9	52.3	3591	1073	1879	0.4673	502.01	117.42	619.42	80.79	45.77	492.86 cd
FM 958LL	29.0	51.0	3328	966	1697	0.5068	489.65	106.06	595.71	74.89	29.30	491.52 cd
All Tex 40802 RR	27.8	56.0	3004	834	1682	0.5057	421.29	105.13	526.41	67.58	25.55	433.28 de
ST 4646B2R	30.5	53.7	2976	908	1599	0.4627	419.78	99.92	519.70	66.97	46.29	406.44 e
Test average	30.3	52.9	3413	1034	1805	0.4969	513.70	112.80	626.49	76.78	31.27	518.44
CV, %	6.9	2.2	6.3	6.3	6.3	2.5	7.3	6.3	7.1	6.3	--	7.6
OSL	0.0682	0.0001	0.0074	<0.0001	0.0120	<0.0001	0.0003	0.0119	0.0008	0.0074	--	0.0002
LSD 0.05	NS	2.0	364	110	192	0.0206	63.17	12.02	74.51	8.20	--	66.73

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:

$2.25/cwt ginning cost.

$125/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 LEPA irrigated replicated transgenic cotton variety demonstration, AG-CARES, Lamesa, TX 2004.

Variety	Micronaire units	Staple 32^{nds} inches	Uniformity %	Strength g/tex	Elongation %	Leaf grade	Rd reflectance	+b yellowness	Color grade color 1	Color grade color 2
ST 2448R	3.8	34.6	82.8	30.3	5.4	2.3	71.4	9.0	4.0	1.0
BCG 28R	3.5	35.4	80.6	27.8	4.8	3.0	70.0	8.9	4.0	1.3
DP 434RR	3.1	36.3	80.5	26.2	5.8	3.0	73.2	8.6	4.0	1.0
PM 2326RR	3.8	33.7	82.5	29.5	6.6	4.3	69.6	8.8	4.0	1.0
ST 5599BR	3.2	33.9	79.5	28.7	4.8	3.3	70.9	9.0	4.0	1.3
FM 960RR	2.9	35.9	81.3	31.8	3.4	3.0	72.8	8.3	4.0	1.0
AFD 3602RR	3.2	35.1	81.7	29.2	4.6	2.3	71.0	8.8	4.0	1.0
All Tex 40801 RR	3.3	34.6	81.1	27.7	6.4	2.0	71.5	8.6	4.0	1.0
DP 494RR	3.2	35.8	80.7	30.0	4.8	2.7	70.9	8.8	4.0	1.3
DP 488BG/RR	2.9	35.9	80.2	28.9	4.8	2.7	71.7	8.7	4.0	1.0
FM 958LL	3.1	37.0	82.0	31.2	3.4	2.3	71.7	8.2	4.0	1.0
All Tex 40802 RR	3.1	36.2	80.2	26.5	5.1	2.7	71.1	8.5	4.0	1.0
ST 4646B2R	3.2	34.1	80.2	27.3	5.9	1.3	70.3	9.3	4.0	2.0
Test average	3.3	35.3	81.0	28.9	5.1	2.7	71.2	8.7	4.0	1.2
CV, %	4.0	1.5	1.1	2.5	7.2	35.2	1.0	3.1	--	--
OSL	<0.0001	<0.0001	0.0040	<0.0001	<0.0001	0.1298	0.0002	0.003	--	--
LSD 0.05	0.2	0.9	1.5	1.2	0.6	NS	1.2	0.5	--	--

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, NS - not significant.

Table 3. Seed and technology expenses* for the LEPA irrigated replicated transgenic cotton variety demonstration, AG-CARES, Lamesa, TX 2004.

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
ST 2448R	4460	230,000	4.40	75.90	37.80	113.70	25.84
BCG 28R	5605	280,250	5.36	68.50	59.50	128.00	23.87
DP 434RR	4720	250,000	4.78	97.50	57.20	154.70	32.35
PM 2326RR	4700	250,000	4.78	55.00	41.10	96.10	20.09
ST 5599BR	4300	230,000	4.40	92.00	111.70	203.70	46.29
FM 960RR	4400	220,000	4.21	72.95	50.30	123.25	29.28
AFD 3602RR	4450	222,500	4.26	64.40	37.80	102.20	24.01
All Tex 40801 RR	5000	250,000	4.78	65.00	57.20	122.20	25.55
DP 494RR	5725	250,000	4.78	97.50	57.20	154.70	32.35
DP 488BG/RR	5050	250,000	4.78	97.50	121.40	218.90	45.77
FM 958LL	4460	223,000	4.27	125.00	.	125.00	29.30
All Tex 40802 RR	5000	250,000	4.78	65.00	57.20	122.20	25.55
ST 4646B2R	4500	230,000	4.40	92.00	111.70	203.70	46.29

*Trial was planted at 52,272 seed/acre in 40-inch rows.

TITLE:

Replicated Transgenic Dryland Cotton Variety Demonstration at AG-CARES, Lamesa, TX, 2004.

AUTHORS:

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

MATERIALS AND METHODS:

Varieties:	All-Tex 40801RR, All-Tex 40802RR, AFD 3602RR, Beltwide Cotton Genetics 28R, Deltapine 434RR, Deltapine 488BG/RR, Deltapine 494RR, Deltapine 555BG/RR, FiberMax 960RR, FiberMax 960B2R, Paymaster 2326RR, Stoneville 2448R, and Stoneville 5599BR
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	3 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 (360-920 ft long).
Planting date:	21-May
Weed management:	Treflan was applied preplant incorporated at 1.25 pt/acre on 20-April. A generic glyphosate herbicide was applied at 32 oz/acre on 14-June with a follow up post-direct application of 32 oz/acre on 3-August. A single cultivation was conducted on 25-June.
Irrigation:	Watered up on 21, 24-May (LEPA irrigation - 0.80" total)

Rainfall:

April:	1.53	July:	2.52"
May:	0.07"	August:	2.14"
June:	1.84"	September:	5.86"
Total moisture:	14.76"		

Insecticides:	No insecticides were applied at this site. This location is in an active boll weevil eradication zone, however, no applications were made by the Texas Boll Weevil Eradication Program.
Fertilizer management:	Preplant fertilizer consisting of 150 lbs/acre 10-34-0 was applied on 12-April.
Harvest aids:	Harvest aids included Boll'd (6-lb ethephon/gal) at 1.3 pt/acre + Ginstar at 4 oz/acre applied at 70 percent open bolls on 8-October with a follow-up application of Gramoxone Max at 20 oz/acre + ET defoliant at 1.0 oz/acre with COC on 1-November.
Harvest:	Plots were harvested on 10-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 Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center (ITC) at Texas Tech University for HVI analysis and USDA loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.25 per cwt. of bur cotton and seed value/acre was based on $125/ton. Ginning costs did not include checkoff.

Seed and tech fees: Seed and technology fee costs were determined by variety on a per acre basis using the manufacturer's suggested retail price for seed and appropriate technology fees for Bollgard, Bollgard II, and/or Roundup Ready based on 3 seeds/row-ft.

RESULTS AND DISCUSSION:

Significant differences were observed for a majority of the parameters measured (Tables 1 and 2). Lint turnout ranged from 31.4% to 39.6% for Stoneville 2448R and Deltapine 555BG/RR, respectively. Lint yields ranged from a low of 559 lb/acre (Stoneville 2448R), to a high of 805 lb/acre (FiberMax 960B2R). Lint loan values varied from a low of $0.4813/lb for Stoneville 2448R, to a high of $0.5462/lb for Deltapine 494RR. After adding lint and seed value, total value/acre ranged from a low of $329.73 to a high of $489.87(Stoneville 2448R and Deltapine 488BG/RR, respectively). When subtracting ginning costs and seed and technology fees, the net value/acre ranged from a high of $413.73 (Deltapine 494RR) to a low of $270.30 (Stoneville 2448R), a difference of $143.43. Micronaire values ranged from a low of 3.2 for Stoneville 2448R, to a high of 4.1 for Deltapine 555BG/RR. Staple length averaged 33.5 across all varieties with a low of 32.6 and a high of 34.7. Percent uniformity ranged from a low of 78.1 (Deltapine 434RR) to a high of 81.1 (Deltapine 494RR). A test average strength of 26.8 g/tex was observed with Deltapine 434RR producing the lowest value (24.0), and Deltapine 494RR and Stoneville 2448R producing the highest (28.6). Significant differences were observed among varieties for elongation (%), reflectance (Rd) and yellowness (+b), however, no differences existed for leaf values. 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 some inclement weather was encountered at this location with low intensity rainfall and low wind events prior to harvest. As a result, some picker type varieties experienced slight pre-harvest losses. Additional multi-site and multi-year applied research is needed to evaluate varieties across a series of environments.

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Table 1. Harvest results from the replicated dryland transgenic cotton variety demonstration, AG-CARES, Lamesa, TX 2004.

Variety	Lint turnout %	Seed turnout %	Bur cotton yield lb/acre	Lint yield lb/acre	Seed yield lb/acre	Lint loan value $/lb	Lint value $/acre	Seed value $/acre	Total value $/acre	Ginning cost $/acre	Seed-tech fee $/acre	Net value $/acre
DP 494RR	37.4	49.9	2063	771	1029	0.5462	420.12	64.29	484.41	46.42	24.26	413.73 a
DP 488BG/RR	36.7	49.9	2147	788	1072	0.5362	422.89	66.98	489.87	48.29	34.33	407.25 ab
FM 960B2R	35.5	51.6	2266	805	1169	0.5148	413.74	73.10	486.84	50.99	32.75	403.10 ab
ST 5599BR	36.7	52.1	2167	796	1129	0.4950	394.93	70.52	465.46	48.77	34.72	381.97 abc
BCG 28R	35.2	51.2	2078	732	1064	0.5018	366.25	66.48	432.73	46.75	17.91	368.07 abc
AFD 3602RR	32.3	53.5	2132	689	1141	0.5142	355.55	71.31	426.86	47.95	18.01	360.90 abcd
DP 555BG/RR	39.6	50.8	1897	751	964	0.4915	370.17	60.25	430.42	42.68	34.33	353.42 abcd
DP 434RR	36.8	50.3	2010	740	1011	0.4827	357.48	63.21	420.69	45.24	24.26	351.20 abcd
All Tex 40801 RR	34.8	52.1	1956	682	1020	0.4937	336.46	63.74	400.20	44.01	19.16	337.02 abcde
FM 960RR	36.6	51.6	1849	677	954	0.4967	335.88	59.65	395.53	41.61	21.96	331.96 bcde
All Tex40802 RR	32.5	54.8	2037	662	1115	0.4818	317.49	69.71	387.21	45.83	19.16	322.21 cde
PM 2326RR	31.8	54.1	1804	574	977	0.4877	280.00	61.02	341.02	40.59	15.07	285.36 de
ST 2448R	31.4	54.5	1780	559	969	0.4813	269.15	60.58	329.73	40.05	19.38	270.30 e
Test average	35.2	52.0	2014	710	1047	0.5018	356.93	65.45	422.38	45.32	24.25	352.81
CV, %	2.0	1.9	12.5	12.8	12.5	3.1	12.5	12.5	12.4	12.5	--	13.3
OSL	<0.0001	<0.0001	0.4343	0.0424	0.5142	0.0003	0.0031	0.5150	0.0117	0.4356	--	0.0200
LSD 0.05	1.2	1.7	NS	153	NS	0.0261	75.01	NS	88.19	NS	--	78.93

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:
$2.25/cwt ginning cost.
$125/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 transgenic cotton variety demonstration, AG-CARES, Lamesa, TX 2004.

Variety	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
DP 494RR	3.9	34.7	81.1	28.6	5.0	2.7	73.3	8.9	3.3	1.0
DP 488BG/RR	3.9	34.2	80.2	27.8	4.8	1.0	74.1	9.2	3.3	1.0
FM 960B2R	3.4	34.7	78.8	28.3	3.6	3.0	74.5	7.7	4.0	1.0
ST 5599BR	3.9	32.8	78.3	26.0	4.7	2.3	73.3	9.1	3.7	1.0
BCG 28R	4.0	33.4	79.2	25.3	4.7	2.0	72.8	8.9	3.7	1.0
AFD 3602RR	3.5	33.9	79.7	28.1	4.5	2.0	73.1	9.0	3.7	1.0
DP 555BG/RR	4.1	32.6	78.6	25.2	4.9	1.7	77.3	8.0	3.0	1.0
DP 434RR	3.6	32.7	78.1	24.0	6.4	1.7	75.7	8.5	3.0	1.0
All Tex 40801 RR	3.6	33.1	80.1	26.5	6.6	1.7	74.9	8.6	3.3	1.0
FM 960RR	3.3	34.0	79.4	27.3	4.0	2.0	75.4	8.2	3.3	1.0
All Tex40802 RR	3.4	33.1	79.0	25.4	5.2	1.7	74.4	8.6	3.7	1.0
PM 2326RR	3.9	33.0	80.7	27.8	6.1	2.7	71.5	9.4	3.7	1.7
ST 2448R	3.2	33.6	80.8	28.6	5.6	2.3	73.1	9.4	3.3	1.3
Test average	3.7	33.5	79.5	26.8	5.1	2.1	74.1	8.7	3.5	1.1
CV, %	5.6	1.8	0.9	3.5	7.8	37.3	1.0	3.6	--	--
OSL	<0.0001	0.0012	<0.0001	<0.0001	<0.0001	0.1906	<0.0001	<0.0001	--	--
LSD 0.05	0.3	1.0	1.2	1.6	0.7	NS	1.3	0.5	--	--

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, NS - not significant.

Table 3. Seed and technology expenses* for the replicated dryland transgenic cotton variety demonstration, AG-CARES, Lamesa, TX 2004.

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
DP 494RR	5725	250,000	6.38	97.50	57.20	154.70	24.26
DP 488BG/RR	5050	250,000	6.38	97.50	121.40	218.90	34.33
FM 960B2R	4188	209,400	5.34	72.95	102.00	174.95	32.75
ST 5599BR	4300	230,000	5.87	92.00	111.70	203.70	34.72
BCG 28R	5605	280,250	7.15	68.50	59.50	128.00	17.91
AFD 3602RR	4450	222,500	5.68	64.40	37.80	102.20	18.01
DP 555BG/RR	6300	250,000	6.38	97.50	121.40	218.90	34.33
DP 434RR	4720	250,000	6.38	97.50	57.20	154.70	24.26
All Tex 40801 RR	5000	250,000	6.38	65.00	57.20	122.20	19.16
FM 960RR	4400	220,000	5.61	72.95	50.30	123.25	21.96
All Tex40802 RR	5000	250,000	6.38	65.00	57.20	122.20	19.16
PM 2326RR	4700	250,000	6.38	55.00	41.10	96.10	15.07
ST 2448R	4460	230,000	5.87	75.90	37.80	113.70	19.38

*Trial was planted at 39204 seed/acre in 40-inch rows.

TITLE:

Replicated Dryland Cotton Systems Variety Demonstration at AG-CARES, Lamesa, TX 2004.

AUTHORS:

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

MATERIALS AND METHODS:

Varieties:	AFD 2485, All-Tex AtlasRR, Beltwide Cotton Genetics 24R, Deltapine 5415RR, Douglas King CT210, FiberMax 958, Paymaster 2379RR, Paymaster 2326RR, Paymaster HS26, and Stoneville 5303R
Experimental design:	Randomized complete block with 3 replications
Seeding rate:	3.6 seeds/row-ft in 40-inch row spacing (John Deere MaxEmerge vacuum planter)
Plot size:	4 rows by length of field (~800 ft)
Planting date:	8-June (dry planted, did not come up until after 18- June rainfall event)
Weed management:	Treflan was applied preplant incorporated at 1.25 pt/acre across all varieties on 14-April. Roundup WeatherMax was applied over-the-top to Roundup Ready varieties on 12-July at 22 oz/acre with 17 lbs per 100 gallons of Ammonium Sulfate followed by a post-directed application applied on 4-August at 22 oz/acre with 17 lbs per 100 gallons of Ammonium Sulfate. All conventional varieties were cultivated one time on 20-July. Hoeing on conventional varieties was conducted on 20-July by project personnel. On 18-August, a blanket hoeing over the entire field was conducted by AG-CARES personnel.
Rainfall:	April: 1.53 · July: 2.52" May: 0.07" · August: 2.14" June: 1.84" · September: 5.86" Total rainfall: 13.96"
Insecticides:	No insecticides were applied at this site. This location is in a active boll weevil eradication zone, however, 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 applied at 10 oz/acre on 9-November.
Harvest:	Plots were harvested on 1-December 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 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 loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on $2.25 per cwt. of bur cotton and seed value/acre was based on $125/ton. Ginning costs did not include checkoff.

Seed and tech fees: Seed and technology fee costs (Table 3) 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 3.6 seeds/row-ft.

RESULTS AND DISCUSSION:

Weed pressure at this site would generally be considered light and consisted mainly of silverleaf nightshade, and pigweed "escapes". Significant differences were noted for most parameters measured (Tables 1 and 2). Lint turnout ranged from 22.9% for Deltapine 5415RR to 30.4% for AFD 2485. Lint yields varied from a low of 405 lb/acre (Deltapine 5415RR) to a high of 724 lb/acre (AFD 2485). Lint loan values ranged from a low of $0.4787/lb to a high of $0.5642/lb for All-Tex AtlasRR and FiberMax 958, respectively. After adding lint and seed value, total value/acre ranged from a low of $260.47 for Deltapine 5415RR, to a high of $462.09 for AFD 2485. When subtracting ginning costs and seed and technology fees, the net value/acre among varieties ranged from a high of $393.04 (AFD 2485) to a low of $168.99 (Deltapine 5415RR), a difference of $224.05. Micronaire values ranged from a low of 3.1 for Deltapine 5415RR to a high of 4.5 for All-Tex AtlasRR and Paymaster HS26. Staple length averaged 33.4 across all varieties with a low of 30.7 and a high of 36.0. Percent uniformity ranged from a low of 79.9 (All-Tex AtlasRR and Douglas King CT210) to a high of 82.7 (FiberMax 958 and Paymaster 2326RR). Significant differences were observed among varieties for elongation (%) and leaf grade, however, no differences existed for strength, reflectance (Rd) or 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 some inclement weather was encountered at this location with low intensity rainfall and low wind events prior to harvest. As a result, the picker-type varieties experienced some preharvest losses. 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 2004.

Variety	Lint turnout %	Seed turnout %	Bur cotton yield lb/acre	Lint yield lb/acre	Seed yield lb/acre	Lint loan value $/lb	Lint value $/acre	Seed value $/acre	Total value $/acre	Ginning cost $/acre	Systems cost $/acre	Net value $/acre	
AFD 2485	30.4	45.1	2379	724	1072	0.5437	395.09	66.99	462.09	53.52	15.53	393.04	a
FM 958	28.4	45.4	2165	616	983	0.5642	347.22	61.45	408.67	48.72	22.22	337.73	ab
PM 2326RR	28.6	49.3	2075	594	1022	0.5442	323.18	63.88	387.07	46.69	45.30	295.08	bc
PM HS26	28.1	48.8	2079	584	1014	0.5027	293.29	63.36	356.65	46.78	18.29	291.58	bcd
PM 2379RR	27.9	47.8	2227	622	1063	0.4982	310.13	66.47	376.60	50.10	45.30	281.21	bcde
BCG 24R	29.1	48.4	1993	581	965	0.5092	296.09	60.34	356.43	44.85	51.55	260.03	cde
All-Tex Atlas RR	29.5	49.8	1915	565	954	0.4787	270.65	59.66	330.31	43.09	44.79	242.43	cde
DK CT210	27.2	49.0	1805	492	886	0.4842	239.31	55.35	294.66	40.62	19.05	235.00	de
ST 5303R	29.5	47.8	1898	560	908	0.4867	273.03	56.75	329.78	42.71	53.50	233.58	e
DP 5415RR	22.9	47.5	1771	405	842	0.5142	207.87	52.60	260.47	39.85	51.63	168.99	f
Test average	28.2	47.9	2031	574	971	0.5126	295.59	60.69	356.27	45.69	36.72	273.87	
CV, %	5.9	4.3	8.6	8.6	8.5	4.5	11.0	8.6	10.5	8.6	--	12.3	
OSL	0.0025	0.1399	0.0095	<0.0001	0.0470	0.0024	<0.0001	0.0471	0.0002	0.0095	--	<0.0001	
LSD 0.05	2.8	NS	299	85	142	0.0395	55.68	8.90	63.94	6.74	--	57.64	

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:
$2.25/cwt ginning cost.
$125/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 2004.

Variety	Micronaire units	Staple 32^{nds} inches	Uniformity %	Strength g/tex	Elongation %	Leaf grade	Rd reflectance	+b yellowness	Color grade color 1	Color grade color 2
AFD 2485	4.3	34.6	81.8	28.1	4.8	1.7	79.4	9.0	1.7	1.0
FM 958	4.0	36.0	82.7	29.2	4.0	1.7	78.3	9.3	1.7	1.0
PM 2326RR	4.3	34.1	82.7	28.4	6.9	2.3	75.4	9.4	3.0	1.0
PM HS26	4.5	32.7	82.0	29.3	7.1	2.7	75.6	8.8	3.0	1.0
PM 2379RR	4.4	32.6	81.6	28.5	7.9	1.3	77.4	9.8	2.0	1.3
BCG 24R	3.6	33.5	81.2	27.4	8.4	1.0	77.7	10.3	1.3	1.7
All-Tex Atlas RR	4.5	30.7	79.9	27.5	8.2	1.7	74.8	10.0	2.3	1.7
DK CT210	3.4	32.4	79.9	27.1	8.7	1.0	78.2	10.0	1.3	1.3
ST 5303R	4.1	32.0	80.8	28.0	7.8	1.0	76.7	10.4	1.7	2.0
DP 5415RR	3.1	35.1	80.8	27.9	8.1	1.0	79.8	9.7	1.3	1.0
Test average	4.0	33.4	81.3	28.1	7.2	1.5	77.3	9.7	1.9	1.3
CV, %	5.0	2.8	1.1	3.6	9.1	28.9	3.3	6.4	--	--
OSL	<0.0001	<0.0001	0.0105	0.2094	<0.0001	0.0012	0.2910	0.0633	--	--
LSD 0.05	0.3	1.6	1.6	NS	1.1	0.8	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 systems variety demonstration, AG-CARES, Lamesa, TX 2004.

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 2485	4560	228,000	4.85	36.80	0.00	36.80	7.59
FM 958	4472	223,600	4.75	67.85	0.00	67.85	14.28
PM 2326RR	4700	250,000	5.31	55.00	41.10	96.10	18.08
PM HS26	4200	250,000	5.31	55.00	0.00	55.00	10.35
PM 2379RR	4600	250,000	5.31	55.00	41.10	96.10	18.08
BCG 24R	5128	256,400	5.45	68.50	64.10	132.60	24.33
All-Tex Atlas RR	4600	215,000	4.57	42.50	37.80	80.30	17.57
DK CT210	5250	262,500	5.58	62.00	0.00	62.00	11.11
ST 5303R	4400	230,000	4.89	75.90	52.60	128.50	26.28
DP 5415RR	5600	250,000	5.31	72.50	57.20	129.70	24.41

*Trial was planted at 47,045 seed/acre in 40-inch rows.

Table 4. Expenses incurred for the replicated dryland systems variety demonstration, AG-CARES, Lamesa, TX 2004.

	Variety	Seed cost/bag	Tech fees/bag	Total cost/bag	Seed & tech fee/ac	Herb apps	Herb app cost/ac	Roundup WeatherMax over-the-top cost/ac	Roundup WeatherMax post-directed cost/ac	Cultivation cost/ac	Hoe cost/ac	Systems cost/ac
1	PM 2326RR	55.00	41.10	96.10	18.08	2	7.00	10.11	10.11	0.00	0.00	45.30
2	PM 2379RR	55.00	41.10	96.10	18.08	2	7.00	10.11	10.11	0.00	0.00	45.30
3	DP 5415RR	72.50	57.20	129.70	24.41	2	7.00	10.11	10.11	0.00	0.00	51.63
4	ST 5303R	75.90	52.60	128.50	26.28	2	7.00	10.11	10.11	0.00	0.00	53.50
5	All-Tex Atlas RR	42.50	37.80	80.30	17.57	2	7.00	10.11	10.11	0.00	0.00	44.79
6	BCG 24R	68.50	64.10	132.60	24.33	2	7.00	10.11	10.11	0.00	0.00	51.55
7	PM HS26	55.00	0.00	55.00	10.35	0	0.00	0.00	0.00	5.00	2.94	18.29
8	DK CT210	62.00	0.00	62.00	11.11	0	0.00	0.00	0.00	5.00	2.94	19.05
9	AFD 2485	36.80	0.00	36.80	7.59	0	0.00	0.00	0.00	5.00	2.94	15.53
10	FM 958	67.85	0.00	67.85	14.28	0	0.00	0.00	0.00	5.00	2.94	22.22
					3.60 seed/row-ft per row-foot 47045 seed/ac		3.50/ac	12-Jul 57.00/gal includes AMS at 0.31/ac	4-Aug	20-Jul	20-Jul 0.49 hr/ac total hrs hoeing 1.5 6.00/hr	
								Roundup WeatherMax rate at 22 oz/ac			spot hoeing	

Base weed control program		chem cost	app cost	total cost
	Preplant			
14-Apr	1.25 pt Treflan PPI	4.29	3.50	7.79
18-Aug	Blanket hoe cost			4.09
Total blanket weed control program ($/A)				11.88

TITLE:

Replicated Dryland Cotton Seeding Rate and Planting Pattern Demonstration at AG-CARES, Lamesa, TX, 2004.

AUTHORS:

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

MATERIALS AND METHODS:

Variety:	AFD 3511RR
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:	8-June (dry planted, did not come up until 18-June rainfall)
Weed management:	Treflan was applied preplant incorporated at 1.25 pt/acre on 26-January. Roundup WeatherMax was applied on 12-July at 22 oz/acre with 17 lbs/100 gallons of Ammonia Sulfate. Plots were cultivated one time on 22-July.

Rainfall:				
	April: 1.53		July:	2.52"
	May: 0.07"		August:	2.14"
	June: 1.84"		September:	5.86"
	Total rainfall: 13.96"			

Insecticides:	No insecticides were applied at this site. This location is in a 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:	Gramoxone Max was applied at 10 oz/acre on 9-November.
Harvest:	Plots were harvested on 1-December 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 Research and Extension Center at Lubbock to determine gin turnouts.
Fiber analysis:	Lint samples were submitted to the International Textile Center (ITC) at Texas Tech University for HVI analysis and USDA loan values were determined for each plot.
Ginning costs and seed values:	Ginning costs were based on $2.25 per cwt. of bur cotton and seed value/acre was based on $125/ton. Ginning costs did not include checkoff.
Seed costs:	Seed costs/acre (Table 3) were based on the 2, 4, and 6 seeds/row-ft and the 2 x 1 skip row pattern (66.6% of solid planting rate).

RESULTS AND DISCUSSION:

No differences were observed for percent lint and seed turnouts or lint loan value (Table 1). Lint yields (based on land acres) varied from a low of 430 lb/acre (6 seed/row-ft solid planting) to a high of 553 lb/acre (4 seed/row-ft 2x1 planting). After adding lint and seed value, total value/acre ranged from a low of $265.21 (6 seed/row-ft solid planting) to a high of $351.92 (4 seed/row-ft 2x1 planting). When subtracting ginning cost and seed and technology fees, the net value/acre ranged from a low of $200.94 (6 seed/row-ft solid planting) to a high of $295.91 (4 seed/row-ft 2x1 planting), a difference of $94.97. No significant differences were observe for any of the fiber properties measured (Table 2). These data indicate that significant differences were obtained in terms of net value/acre due in most part to the planting pattern (solid planting vs. 2x1 skip). The 2, 4, and 6 seed/row-ft solid planting pattern resulted in excessive competition and reduced yield as compared to 2, 4, and 6 seed/row-ft 2x1 planting pattern. Seeding rates within each planting pattern were not significantly different. It should be noted that thinning of stands was encountered during a sand-fighting event in June. Also, some inclement weather was encountered with low intensity rainfall and low wind at this location prior to harvest. However, no substantial yield losses occurred. 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.

DISCLAIMER CLAUSE:

Table 1. Harvest results from the replicated dryland cotton seeding rate and planting pattern demonstration, AG-CARES, Lamesa, TX 2004.

AFD 3511R 4450 seed/lb	Lint turnout %	Seed turnout %	Bur cotton yield lb/acre	Lint yield lb/acre	Seed yield lb/acre	Lint loan value $/lb	Lint value $/acre	Seed value $/acre	Total value $/acre	Ginning cost $/acre	Seed-tech fee $/acre	Net value $/acre
4 seed/ft 2x1	29.3	51.3	1889	553	968	0.5248	291.41	60.51	351.92	42.50	13.51	295.91 a
6 seed 2x1	29.2	50.1	1774	518	889	0.5130	265.11	55.52	320.63	39.91	20.26	260.46 ab
2 seed/ft 2x1	29.3	51.3	1619	475	831	0.5198	246.86	51.94	298.80	36.42	6.75	255.63 ab
2 seed/ft solid	30.0	51.1	1493	449	764	0.4967	222.91	47.74	270.64	33.60	10.13	226.92 bc
4 seed/ft solid	28.9	49.5	1573	454	778	0.4945	224.68	48.65	273.33	35.39	20.26	217.68 bc
6 seed solid	28.5	49.7	1506	430	748	0.5088	218.46	46.75	265.21	33.88	30.39	200.94 c
Test average	29.2	50.5	1642	480	830	0.5096	244.90	51.85	296.76	36.95	16.88	242.92
CV, %	3.8	4.7	8.2	8.2	8.2	4.4	10.8	8.2	10.2	8.2	--	11.4
OSL	0.6739	0.8460	0.0274	0.0240	0.0183	0.5340	0.0409	0.0182	0.0344	0.0273	--	0.0183
LSD 0.05	NS	NS	245	71	124	NS	48.10	7.70	55.24	5.51	--	50.16

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:
$2.25/cwt ginning cost.
$125/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 2004.

AFD 3511R	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
4450 seed/lb	units	32^{nds} inches	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
4 seed/ft 2x1	4.3	33.4	82.0	28.2	6.6	1.7	77.2	9.5	2.3	1.0
6 seed 2x1	4.3	33.0	81.7	27.6	7.1	1.3	76.4	9.5	2.3	1.0
2 seed/ft 2x1	4.3	33.3	81.4	27.6	6.5	1.0	78.1	9.6	2.0	1.0
2 seed/ft solid	4.3	32.3	81.0	28.2	6.9	1.3	76.9	9.3	2.3	1.0
4 seed/ft solid	4.4	32.2	79.9	27.6	7.6	1.7	76.8	9.0	2.3	1.0
6 seed solid	4.3	32.5	81.0	28.2	7.0	1.3	76.6	8.8	3.0	1.0
Test average	4.3	32.8	81.2	27.9	7.0	1.4	77.0	9.3	2.4	1.0
CV, %	3.9	3.1	1.1	3.6	9.6	31.3	1.5	4.9	--	--
OSL	0.8285	0.6357	0.2038	0.8986	0.4207	0.4651	0.5681	0.2794	--	--
LSD 0.05	NS	NS	NS	NS	NS	NS	NS	NS	--	--

CV - coefficient of variation.

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

LSD - least significant difference at the 0.05 level, NS - not significant.

Table 3. Seed and technology expenses* for the replicated dryland cotton seeding rate and planting pattern demonstration, AG-CARES, Lamesa, TX 2004.

AFD 3511R 4450 seed/lb	Seeding rate seed/acre	Seed/lb	Seed/bag	Acres planted /bag	Seed fee $/bag	Tech fee $/bag	Total seed and tech fee $/bag	Seed and tech fee $/acre
4 seed/ft 2x1	34,850	4500	225,000	6.46	49.40	37.80	87.20	13.51
6 seed 2x1	52,275	4500	225,000	4.30	49.40	37.80	87.20	20.26
2 seed/ft 2x1	17,425	4500	225,000	12.91	49.40	37.80	87.20	6.75
2 seed/ft solid	26,136	4500	225,000	8.61	49.40	37.80	87.20	10.13
4 seed/ft solid	52,272	4500	225,000	4.30	49.40	37.80	87.20	20.26
6 seed solid	78,408	4500	225,000	2.87	49.40	37.80	87.20	30.39

13068
row-ft/acre
for 40" rows

seed drop
on 2x1 skip
uses a
0.6666 factor

TITLE:

Results of the Irrigated Nematode Variety and Strains Performance Test at AG-CARES, Lamesa, TX, 2004

AUTHORS:

Terry A. Wheeler, John R. Gannaway, Lyndon Schoenhals, Anna Hall, and Valerie Morgan, Associate Professor, Professor, Senior Research Associate, Research Associate, Research Assistant

MATERIALS AND METHODS:

Test:	Nematode Variety and Strains
Planting Date:	May 6
Row Spacing:	40-in
Planting Pattern:	Solid in Rye stubble
Herbicide:	Prowl @ 3 pt/A applied April 22
	CornerStone@ 1 aq/A applied May 24
Fertilizer:	32-0-0 @ 50 lb/A on June 9
	32-0-0 @ 25 lb/A on July 2 and 22
Irrigations:	1.5 inches pre-plant
(center pivot)	May, 2.55 inches; June 3.25 inches, July 3.7 inches, August, 1.5 inches; September .5 inches
Insecticide:	Temik @ 4 lbs/A at planting
Harvest Aids:	Boll'd @ 16 oz/A + Ginstar @ 4 oz/A on September 27
	Cyclone @ 24 oz/A on October 9
Harvest Date:	November 9
Freeze Date:	November 30

RESULTS AND DISCUSSION:

Twenty-four commercial varieties and breeding lines were evaluated for yield and fiber quality in the presence of root-knot nematodes. A breeding line develop by Drs. Gannaway and Wheeler, TW1318 x TW1320 and ST 5599BR produced the highest yields (Table 1). The test average yield was 1204 lb/A, and yields ranged from 902 to 1583 lbs lint/A. The TW1318 X TW1320 line was lowest in terms of nematode reproduction at 605 nematode/500 cc of soil. The nematode resistant check Acala NemX also had excellent yields (1308 lbs lint/A ranked 6th) and low levels of nematode reproduction (ranked 3rd). Fiber qualities, loan values, and gross returns per acre are summarized in Table 2.

Table 1. Results of the irrigated nematode cotton variety test at the AG-CARES Farm, Lamesa, TX, 2004.

			% Turnout		% Lint		Agronomic Properties				% Open				
							Boll	Seed	Lint	Seed Per	Bolls	Storm			
Designation	Source	Yield	Lint	Seed	Picked	Pulled	Size	Index	Index	Boll	09-24-04	Resistance	Nematodes	Entry	Rank
TW 1318xTW 1320	03T#TT-26	1583	26.1	44.2	34.7	28.1	5.6	11.1	6.2	31.7	71	3.3	605	21	1
Stoneville 5599 BR		1474	28.2	43.5	37.0	29.8	5.8	10.6	6.5	32.7	73	2.3	3465	12	2
Stoneville x4575 BR		1419	28.8	44.7	37.3	29.2	5.3	9.9	6.2	31.5	67	1.8	7800	16	3
Deltapine 488 BG/RR		1412	29.4	44.1	35.5	29.4	5.5	10.2	5.9	33.2	60	2.5	5460	5	4
Stoneville 2448 R		1325	24.8	47.5	34.8	27.5	5.6	11.0	6.2	32.0	87	3.5	6375	10	5
Acala NemX	Check	1308	25.9	43.8	35.5	27.4	5.8	12.6	7.4	28.0	72	2.3	1080	23	6
Stoneville 5242 BR		1272	28.9	44.0	38.4	29.4	5.2	11.1	7.2	27.6	75	1.9	4160	11	7
(CA 3066xM-315)x(CA 1056xM-92)	03T#TT-28	1244	22.2	45.7	35.1	26.9	5.3	12.3	7.0	26.9	60	2.6	920	22	8
Stoneville x3664 R		1211	26.7	45.2	36.1	28.6	5.3	10.4	6.2	30.7	77	3.7	4825	14	9
PhytoGen 410 R		1205	26.0	44.7	35.1	27.1	4.5	9.9	5.7	27.5	64	1.8	4690	8	10
Deltapine 494 RR		1204	27.7	45.7	38.5	30.7	5.1	9.9	6.5	30.1	61	2.4	8630	6	11
Deltapine 449 BG/RR		1189	25.4	44.5	35.5	28.4	4.3	9.6	5.6	27.0	59	2.2	2825	4	12
Stoneville x6636 BR		1189	27.3	45.6	36.5	28.4	4.7	9.5	5.8	29.7	61	1.7	4445	19	13
Hazera 195		1183	22.5	44.7	34.1	25.1	3.9	11.9	6.7	19.8	66	0.7	5160	7	14
Stoneville 1553 R		1174	25.1	49.3	33.2	29.1	5.0	11.3	5.9	28.3	93	3.1	5190	9	15
Stoneville x4686 R		1127	24.8	42.1	36.2	28.6	4.9	10.1	6.0	29.1	65	2.2	3270	17	16
Stoneville x5454B2R		1118	26.1	47.1	35.6	27.1	4.9	9.7	5.6	30.6	67	2.5	9125	18	17
Beltwide Cotton Genetics 28 R		1111	24.7	42.7	36.1	28.8	4.5	9.0	5.3	30.1	75	2.3	5820	2	18
Paymaster 2145 RR	Check	1094	26.0	47.9	34.3	27.6	5.4	10.8	6.0	31.4	75	3.7	3615	24	19
Beltwide Cotton Genetics 24 R		1086	25.7	43.0	37.8	29.7	4.5	8.8	5.6	30.7	80	2.7	5675	1	20
Stoneville x3636 B2R		1065	22.9	41.9	34.8	26.9	4.8	10.3	5.8	28.5	71	2.4	3435	13	21
Stoneville x3969 R		1009	23.5	46.6	35.4	27.5	4.3	9.3	5.3	28.7	75	3.8	2455	15	22
Stoneville x6848 R		1001	23.1	43.0	37.0	28.9	4.8	9.9	6.2	28.6	60	1.6	5710	20	23
Beltwide Cotton Genetics 30 R		902	22.0	46.5	33.0	26.4	4.7	9.3	4.8	32.6	64	2.5	7045	3	24
Mean		1204	25.5	44.9	35.7	28.2	5.0	10.3	6.0	29.4	70	2.5			
C.V.%		11.0	3.5	4.5	1.6	3.0	4.5	2.8	4.7	4.3	13.3	13.8			
LSD 0.05		156	1.5	3.5	1.0	1.4	0.4	0.5	0.5	2.1	11	0.4			

Nem=Root-knot/500 cm3 soil

Table 2. Results of the irrigated nematode cotton variety test at the AG-CARES Farm, Lamesa, TX 2004.

		Micro-		Uni-		Elon-	Leaf			Color	Loan	Gross Loan Value per Acre	
Designation	Source	naire	Length	formity	Strength	gation	Index	Rd	+b	Grade[1/]	Value	$	Rank
TW 1318xTW 1320	03T#TT-26	3.4	1.04	80.4	26.2	6.0	3	76.7	7.5	41-1	0.4923	779.31	1
Stoneville 5599 BR		3.7	1.08	80.4	28.3	4.9	4	73.4	7.6	41-1,41-2	0.5270	776.80	2
Stoneville x4575 BR		3.4	1.11	81.8	26.0	8.5	3	72.4	8.0	41-2,41-3	0.5183	735.47	4
Deltapine 488 BG/RR		3.6	1.11	81.3	28.1	5.8	2	73.4	7.8	41-1,41-2	0.5290	746.95	3
Stoneville 2448 R		3.2	1.12	82.9	28.9	6.3	3	73.3	7.8	41-1,41-4	0.5115	677.74	5
Acala NemX	Check	3.4	1.14	84.4	31.7	4.4	4	71.0	7.1	51-1	0.4833	632.16	8
Stoneville 5242 BR		3.5	1.06	81.7	25.6	6.9	3	72.8	7.6	41-2	0.4953	630.02	9
(CA 3066xM-315)x(CA 1056xM-92)	03T#TT-28	3.4	1.09	82.6	30.0	5.5	5	72.6	7.4	41-2	0.5085	632.57	7
Stoneville x3664 R		3.4	1.03	81.8	26.2	6.4	3	72.0	8.3	41-3,41-4	0.4888	591.94	11
PhytoGen 410 R		3.5	1.11	82.8	27.5	7.3	4	70.0	7.5	51-1,51-3	0.4798	578.16	14
Deltapine 494 RR		3.7	1.14	81.7	29.1	5.6	3	73.3	7.2	41-2	0.5398	649.92	6
Deltapine 449 BG/RR		3.0	1.10	81.0	27.9	5.7	3	73.0	6.5	51-1	0.4445	528.51	19
Stoneville x6636 BR		3.8	1.14	82.0	28.4	5.0	4	72.3	7.3	41-2,51-1	0.5188	616.85	10
Hazera 195		2.9	1.28	82.9	33.9	5.4	5	66.1	8.3	51-4,52-2	0.4113	486.57	22
Stoneville 1553 R		3.2	1.15	82.4	28.3	6.3	3	73.6	7.3	41-1,41-2	0.5013	588.53	12
Stoneville x4686 R		3.2	1.10	81.4	26.6	6.5	3	72.2	7.6	41-2	0.5085	573.08	15
Stoneville x5454B2R		3.4	1.10	81.1	27.5	6.4	3	71.9	7.8	41-2,41-4	0.5178	578.90	13
Beltwide Cotton Genetics 28 R		3.5	1.13	80.7	27.2	5.2	4	72.5	7.2	41-2,51-1	0.5035	559.39	16
Paymaster 2145 RR	Check	3.4	1.05	82.3	27.7	6.2	4	71.7	7.8	41-2,41-4	0.4918	538.03	18
Beltwide Cotton Genetics 24 R		3.5	1.07	81.5	27.8	7.3	3	72.8	7.7	41-2	0.5128	556.90	17
Stoneville x3636 B2R		3.1	1.09	79.6	25.9	5.1	4	71.6	7.5	41-2,51-1	0.4573	487.02	21
Stoneville x3969 R		3.1	1.13	82.2	28.7	6.2	4	72.2	7.5	41-2	0.4980	502.48	20
Stoneville x6848 R		3.4	1.15	83.4	29.9	4.9	3	72.2	6.6	51-1	0.4825	482.98	23
Beltwide Cotton Genetics 30 R		3.1	1.11	80.1	26.3	6.2	4	71.7	7.0	41-2,51-1	0.4748	428.27	24
Mean		3.3	1.11	81.7	28.0	6.0	3	72.3	7.5		0.4960		
C.V.%		4.8	1.2	0.9	2.3	7.3	17.3	1.3	3.9		3.8		
LSD 0.05		0.3	0.02	1.2	1.1	0.7	1	1.6	0.5		0.0326		

1/ Fiber quality determinations are made on samples from two reps. If the color grades from these two samples are identical, only one color grade is reported. If they are different, both are reported.

TITLE:

Results of the Regional Dryland Cotton Performance Test at AG-CARES, Lamesa, TX, 2004

AUTHORS:

John R. Gannaway, Lyndon Schoenhals, Anna Hall, and Valerie Morgan, Professor, Senior Research Associate, Research Associate, Research Assistant

MATERIALS AND METHODS:

Test:	Regional Cotton Variety	
Planting Date:	June 24	
Row Spacing:	40 in	
Planting Pattern:	Solid	
Herbicide:	Triflurlin @ 1.25 pt/A applied pre-plant	
Fertilizer:	None	
Rainfall:	January - September, 6.47 inches	
Insecticide:	Temik @ 4 lb/A at planting	
Harvest Aids:	Gramoxone Max @ 10 oz/A applied	November 9
Harvest Date:	December 8	
Freeze Date:	November 30	

RESULTS AND DISCUSSION:

Forty-five commercial and experimental cotton varieties were compared for yield and fiber quality under dryland conditions at AG-CARES in 2004. Yields ranged from 309 to 623 lb/A, with an average yield of 451 lbs/A (Table 1). Fiber quality was good, with a test-average loan value of $0.497/lb (Table 2).

Table 1. Results of the dryland cotton variety test at the AG-CARES Farm, Lamesa, TX, 2004.

		Agronomic Properties										
		% Turnout		% Lint		Boll	Seed	Lint	Seed Per		
Designation	Yield	Lint	Seed	Picked	Pulled	Size	Index	Index	Boll	Entry	Rank
Stoneville 2454 R	623	30.6	40.9	38.5	29.3	5.9	10.6	7.2	31.2	12	1
Concho 257	614	29.2	44.6	39.1	30.2	5.7	10.4	6.8	32.8	41	2
Concho 287	576	26.9	42.9	37.1	28.0	5.3	10.0	6.2	31.3	42	3
Stoneville 1553 R	572	27.7	46.1	37.4	28.6	4.5	9.7	6.0	28.1	32	4
FiberMax 958 LL	571	27.7	40.5	39.0	29.0	5.3	10.1	6.7	30.9	25	5
Beltwide Cotton Genetics 50 R	568	28.0	46.0	35.6	27.0	5.3	9.8	5.7	33.5	19	6
H&W Genetex 520 RR	556	28.1	46.3	35.9	28.5	6.1	11.1	6.5	33.9	29	7
Stoneville x4686 R	535	25.9	39.3	39.5	29.4	4.8	9.6	6.7	28.4	39	8
All-Tex Atlas	519	26.6	44.9	32.5	24.5	4.7	11.2	6.0	25.9	2	9
Paymaster 2266 RR	519	27.0	43.2	34.2	26.0	5.3	10.8	6.2	29.9	9	10
AFD 2485	518	27.2	39.9	39.4	29.0	5.5	10.3	7.0	30.9	15	11
AFD 2428	517	28.0	42.0	39.5	30.6	5.5	10.1	6.9	31.5	14	12
Von Roeder Western 180	507	24.1	42.8	34.9	26.5	5.3	9.9	5.5	33.6	43	13
FiberMax 958	494	27.6	39.4	37.2	27.1	4.9	10.3	6.7	27.5	6	14
Stoneville 2448 R	485	26.6	41.9	37.4	28.0	4.7	9.6	6.1	28.8	33	15
Paymaster 2145 RR	485	27.3	42.4	37.6	29.5	5.5	10.1	6.4	32.6	45	16
FiberMax 5035 LL	484	24.1	42.3	34.3	25.0	4.7	10.0	5.5	29.1	23	17
Stoneville 5599 BR	480	27.8	38.8	40.2	30.3	5.3	9.6	6.8	31.5	36	18
Paymaster 2326 RR	478	26.0	42.0	34.5	26.6	5.0	9.6	5.5	31.5	10	19
Paymaster 2167 RR	475	28.0	41.6	34.3	25.8	3.7	8.8	5.1	25.2	8	20
AFD 3511 RR	471	25.2	45.1	34.5	27.3	5.5	10.5	5.8	32.5	16	21
AFD 3602 RR	468	24.4	38.5	37.4	27.9	4.9	10.2	6.4	28.8	17	22
Stoneville x3969 R	463	23.8	39.0	36.1	27.6	4.5	9.1	5.4	30.2	38	23
Acala 1517-99	461	25.1	40.9	36.6	27.7	5.0	10.9	6.6	27.4	1	24
Stoneville 5303 R	461	28.1	39.0	39.8	29.0	4.6	9.2	6.3	29.2	35	25
PhytoGen 410 R	455	25.3	39.7	36.4	27.6	4.7	9.7	5.9	29.1	31	26
FiberMax x2031 LL	452	24.4	37.5	38.5	27.5	5.2	10.6	7.0	29.0	28	27
All-Tex Top-Pick	450	25.6	43.8	36.0	26.3	4.9	9.3	5.5	31.6	44	28

Table 1. Cont.

				Agronomic Properties							
		% Turnout		% Lint		Boll	Seed	Lint	Seed Per		
Designation	Yield	Lint	Seed	Picked	Pulled	Size	Index	Index	Boll	Entry	Rank
Deltapine 434 RR	449	25.5	36.3	38.7	29.0	5.0	9.0	6.0	32.4	20	29
FiberMax 819 RR	441	27.1	39.6	38.7	28.6	4.4	8.6	5.7	29.5	24	30
All-Tex Atlas RR	433	26.3	43.9	35.2	26.6	5.1	9.8	5.7	31.9	5	31
Stoneville 4892 BR	424	24.8	38.7	31.2	23.7	4.5	9.7	5.2	27.0	4	32
Deltapine 494 RR	422	28.4	39.7	37.6	27.2	4.6	9.1	5.8	30.0	22	33
Deltapine 488 BG/RR	409	21.2	34.5	38.7	30.1	5.5	9.5	6.3	34.2	21	34
FiberMax 960 RR	409	24.7	36.4	40.0	27.5	5.4	10.7	7.5	28.7	26	35
FiberMax 5013	378	25.8	39.9	34.1	24.8	4.9	10.2	5.9	28.0	7	36
Stoneville 4793 R	373	24.4	37.9	38.6	28.9	5.0	10.1	6.8	28.6	34	37
Deltapine 458 B/RR	361	22.3	38.4	32.2	23.7	3.9	7.8	4.2	30.1	3	38
FiberMax 989 RR	358	24.0	36.5	38.5	28.5	5.1	9.3	6.1	32.0	27	39
Stoneville x6848 R	354	24.4	43.6	34.0	26.1	5.0	9.4	5.1	33.6	40	40
Beltwide Cotton Genetics 30 R	351	21.4	38.9	34.5	25.7	4.5	9.2	5.0	30.8	18	41
Hazera 195	345	18.5	35.4	35.0	24.4	3.7	11.1	6.4	20.1	30	42
Stoneville 474	341	23.7	38.8	33.0	23.6	4.4	9.3	5.3	27.5	11	43
Stoneville x3664 R	332	26.0	39.2	37.4	27.6	5.1	9.8	6.1	30.9	37	44
Tamcot Luxor	309	26.1	39.8	36.5	26.5	5.8	10.6	6.7	31.5	13	45
Mean	461	25.8	40.6	36.6	27.4	5.0	9.8	6.1	30.0		
C.V.%	14.2	4.1	3.3	2.3	3.8	6.7	4.6	4.6	6.2		
LSD 0.05	77	1.8	2.2	1.4	1.7	0.6	0.8	0.5	3.1		

Table 2. Results of the dryland regional cotton variety test at the AG-CARES Farm, Lamesa, TX, 2004.

Designation	Micro-naire	Length	Uni-formity	Strength	Elon-gation	Leaf Index	Rd	+b	Color Grade[1/]	Loan Value	Gross Loan Value per Acre $	Gross Loan Value per Acre Rank
Stoneville 2454 R	4.7	0.96	81.2	24.6	7.5	1	75.7	10.8	12-2,22-2	0.4688	292.06	3
Concho 257	4.3	1.03	81.6	28.6	7.4	2	75.7	8.1	31-2,41-1	0.5060	310.68	1
Concho 287	4.5	1.00	81.3	28.9	9.0	3	75.4	8.6	31-3,41-1	0.4845	279.07	6
Stoneville 1553 R	3.9	1.06	82.3	27.7	9.2	2	76.4	8.0	31-1,41-1	0.5310	303.73	2
FiberMax 958 LL	4.7	1.04	81.1	28.3	6.6	1	76.9	9.2	21-4,31-3	0.5080	290.07	4
Beltwide Cotton Genetics 50 R	4.9	0.98	81.4	28.5	8.7	1	77.0	9.1	21-4,31-3	0.4873	276.79	7
H&W Genetex 520 RR	5.0	1.01	82.9	28.1	7.6	2	75.7	8.6	31-4	0.4748	263.99	10
Stoneville x4686 R	3.7	1.03	81.6	25.2	7.3	2	75.8	10.0	22-1,31-3	0.5040	269.64	8
All-Tex Atlas	4.5	1.00	81.4	27.8	8.0	3	75.4	8.9	21-4,41-1	0.4853	251.87	13
Paymaster 2266 RR	4.6	0.98	81.4	27.2	8.3	2	74.5	9.3	31-3,31-4	0.4843	251.35	14
AFD 2485	4.0	1.08	82.4	28.3	4.9	2	76.5	9.3	21-4,31-3	0.5463	282.98	5
AFD 2428	4.3	0.98	80.2	25.3	7.1	1	73.8	10.7	22-1,32-1	0.4680	241.96	17
Von Roeder Western 180	4.1	1.02	81.4	26.8	6.9	1	74.8	9.6	31-3,31-4	0.5070	257.05	12
FiberMax 958	4.3	1.08	82.5	27.7	5.2	2	75.9	8.9	21-4,41-3	0.5403	266.91	9
Stoneville 2448 R	4.2	1.01	81.9	27.8	8.2	3	75.8	8.2	31-4,41-1	0.4948	239.98	18
Paymaster 2145 RR	4.8	0.95	80.1	27.3	7.0	2	74.7	9.0	31-3,41-3	0.4755	230.62	25
FiberMax 5035 LL	4.1	1.00	81.6	28.0	9.5	3	73.9	8.3	41-3	0.4845	234.50	20
Stoneville 5599 BR	4.3	0.99	81.4	28.4	6.2	3	72.1	10.0	32-2,42-1	0.4740	227.52	28
Paymaster 2326 RR	4.2	0.99	81.8	27.4	7.8	2	74.5	8.9	31-3,41-3	0.4863	232.45	22
Paymaster 2167 RR	4.7	0.95	80.4	25.5	7.5	3	74.0	8.9	31-4,41-3	0.4718	224.10	29
AFD 3511 RR	4.2	1.03	81.1	27.7	6.7	2	75.7	9.3	31-2,32-1	0.5013	236.11	19
AFD 3602 RR	4.0	1.00	81.4	26.0	6.8	2	75.8	9.7	22-2,31-1	0.4880	228.38	27
Stoneville x3969 R	4.1	1.02	82.2	27.3	8.3	1	76.3	9.2	21-4,31-1	0.5010	231.96	23
Acala 1517-99	3.7	1.13	83.6	30.4	5.6	3	74.9	9.1	31-3,31-4	0.5648	260.37	11
Stoneville 5303 R	4.1	0.99	81.8	25.6	6.8	2	74.7	9.2	31-3,31-4	0.4833	222.80	30
PhytoGen 410 R	4.4	1.05	83.5	26.6	9.9	3	72.3	9.1	41-3	0.5130	233.42	21
FiberMax x2031 LL	3.9	1.08	82.1	26.6	5.6	2	76.5	9.1	31-3	0.5453	246.48	15
All-Tex Top-Pick	3.8	1.06	81.4	26.8	9.0	2	77.0	9.4	21-3,31-3	0.5378	242.01	16

Table 2. Cont.

Designation	Micro- naire	Length	Uni- formity	Strength	Elon- gation	Leaf Index	Rd	+b	Color Grade[1/]	Loan Value	Gross Loan Value per Acre $	Rank
Deltapine 434 RR	4.0	1.04	81.5	24.9	8.1	3	74.1	9.7	31-4,32-1	0.5093	228.68	26
FiberMax 819 RR	4.0	1.05	82.6	27.0	7.4	2	78.1	8.1	31-1,31-2	0.5243	231.22	24
All-Tex Atlas RR	4.6	0.99	80.9	27.5	7.8	2	74.5	9.5	31-4,32-1	0.4825	208.92	32
Stoneville 4892 BR	4.1	1.00	81.6	24.6	7.5	3	74.1	11.0	22-2	0.4725	200.34	35
Deltapine 494 RR	3.7	1.05	82.2	26.6	7.7	2	75.7	9.3	31-3	0.5218	220.20	31
Deltapine 488 BG/RR	3.2	1.08	81.4	25.9	6.6	2	75.2	10.1	22-2,31-3	0.5003	204.62	33
FiberMax 960 RR	3.4	1.04	79.9	25.2	5.3	2	75.7	10.1	21-4,22-2	0.4925	201.43	34
FiberMax 5013	4.5	0.99	82.1	28.0	7.8	2	75.0	8.7	31-4,41-1	0.4850	183.33	37
Stoneville 4793 R	4.2	1.00	82.3	24.9	8.0	2	74.8	9.8	31-3,32-1	0.4740	176.80	40
Deltapine 458 B/RR	3.5	1.03	80.8	25.4	6.9	2	77.9	9.9	21-3	0.4938	178.26	38
FiberMax 989 RR	3.8	1.01	80.6	26.5	6.8	2	76.1	9.6	22-2,31-3	0.4965	177.75	39
Stoneville x6848 R	4.1	1.06	83.0	28.7	7.7	2	74.2	9.7	31-3,32-1	0.5283	187.02	36
Beltwide Cotton Genetics 30 R	4.0	1.01	80.3	24.4	6.6	3	75.2	9.4	31-3	0.4853	170.34	41
Hazera 195	2.9	1.21	81.8	30.6	6.7	4	69.5	10.1	42-1	0.4355	150.25	44
Stoneville 474	3.9	1.01	80.8	24.7	7.3	2	71.9	10.7	32-2,33-1	0.4705	160.44	43
Stoneville x3664 R	4.3	0.97	81.9	26.4	7.6	2	75.2	9.8	31-3	0.4858	161.29	42
Tamcot Luxor	4.6	1.00	81.6	26.6	6.7	3	73.1	8.2	41-3,41-4	0.4835	149.40	45
Mean	4.1	1.02	81.6	26.9	7.3	2	75.0	9.3		0.4970		
C.V.%	6.2	1.8	0.9	2.2	5.8	34.0	1.3	5.8		2.8		
LSD 0.05	0.4	0.03	1.1	1.0	0.7	1	1.6	0.9		0.0234		

1/ Fiber quality determinations are made on samples from two reps. If the color grades from these two samples are identical, only one color grade is reported. If they are different, both are reported.

TITLE:

Testing of Variable-rate Nitrogen and Variable-rate Water in Irrigated Cotton at AG-CARES, Lamesa, TX, 2004.

AUTHORS:

K.F. Bronson, J.W. Keeling, T.A. Wheeler, R. K. Boman, J.D. Booker, Associate Professor, Professor, Associate Professor, Professor/Extension Specialist, and Assistant Research Scientist.

METHODS AND PROCEDURES:

Experimental Design:	Randomized complete block with 3 replications
Plot size:	27 ft wide (8, 40-inch rows) and > 500 ft long.
Experimental area:	35 ac
Soil type:	Amarillo sandy loam
Variety:	FiberMax® 989 Roundup Ready®
Soil sampling:	Three-quarter-ac grid
N fertilizer rate:	Blanket-rate of 89 lb N/ac, Average Variable-rate of 85 lb N/ac Zero-N
Irrigation rates:	95, 104, and 113 % ET replacement, LEPA on a 3.5 day schedule
Planting date:	May 4
Harvest date:	November 8

RESULTS AND DISCUSSION

Nitrogen (N) fertilizer use efficiency is low in irrigated cotton. Variable-rate N applications may improve N fertilizer management with greater yields and reduced N applications. This involves adding more N to low soil testing areas and less N to high soil testing areas. We also hypothesize that adding less irrigation to areas such as the bottomslope, may improve water use efficiency. At the AG-CARES site, water redistribution results in greater yields in the bottomslope in most years.

Lint yield responded to the second rate of irrigation, and then leveled off (Table 1). Lint yields were 954, 1041, and 1044 lb/ac for the three irrigation levels, respectively. This was due to the rainier-than-average weather that characterized 2004. No interaction between irrigation level and landscape position was observed, meaning that variable-rate irrigation would not have affected yields or water use efficiency. Based in three years of data, variable-rate irrigation based on landscape positions therefore does not appear to be beneficial.

Nitrogen fertilizer applications were based on pre-plant soil nitrate tests to 2 feet. Soil nitrate-N is subtracted from 120 N/ac (N supply needed for a 2-bale yield goal) and this gave the N fertilizer recommendation in lb N/ac. With blanket-management, the results from the 1.3 samples/ac in the blanket-N strip plots were averaged. In the variable-rate N strip plots, N fertilizer applications are allowed to vary in short distances based on a soil test nitrate map of the field (based on interpolation of nitrate data). The blanket-rate application was 89 lb N/ac, compared to the average of the variable-rate applications, which was 85 lb N/ac.

A large lint yield response of 162 lb/ac was observed with variable-rate N management, compared to the zero-N treatment (Table 1; "delta yields" in Table 2). Blanket-rate N however, showed only a marginal lint yield response above the zero-N plots. Dollar return to N fertilizer was negative $ 8/ac and positive $ 53/ac with blanket and variable-rate N management, respectively (Table 2). The $ 53/ac with variable management would more than cover the cost of sampling 1.3 times/ac and the laboratory costs of $2.50 per sample for nitrate analysis. The cost of the retro-fitting a liquid fertilizer applicator to do variable-rate fertilization (~$10,000) could be spread out across several years.

Table 1. Lint yields as affected by N and water management, AG-CARES Lamesa, TX, 2004

N treatment	Water management (%ET)			
	95	104	113	Means
	---------- lb /ac ----------			
Blanket-rate	928	1004	1036	989
Variable-rate	1022	1150	1146	1106
Zero-N	913	970	949	944
Means	954	1041	1044	
LSD (P=0.05)				46

Table 2. Returns to fertilizer (no costs of VRT equipment or extra soil sampling and analysis; $0.35/lb N and $0.51/lb lint loan)

	N rate	Cost N	Delta yield	Gross ret to N fert	Net return to N fert
	lb N/ac	$/ac	lb/ac	$/ac	$/ac
Blanket-N	89	31.15	45	22.95	-8.20
Variable-N	85	29.75	162	82.62	52.87

TITLE:

Profitability of Variable Rate Phosphorous Use in Cotton

AUTHORS:

Raghu M. Kulkarni, Roderick M. Rejesus, Eduardo Segarra, Margarita Velandia, and Kevin Bronson, Department of Agricultural and Applied Economics - Texas Tech University, Texas Agricultural Experimental Station

RESULTS AND DISCUSSION:

This study analyzes the economics of variable rate phosphorus application for cotton production in the Texas High Plains. Specifically, we evaluate the economic implications of a variable rate phosphorus application program that is based on management zones delineated using a spatial statistics approach. Using experimental data from Lamesa, TX, we found that a management zone-based variable rate phosphorus program results in higher cotton yields and higher profits, on average, relative to a uniform rate phosphorus application. Phosphorus is an important fertilizer input used in cotton production. As such, there has been long standing interest in developing techniques to more accurately apply this fertilizer input in cotton production. A precision agriculture technique like variable rate phosphorus application is seen as a potential approach to achieve more accurate fertilizer applications, which can consequently reduce fertilizer costs and improve profitability of cotton producers. In light of the potential profit enhancement associated with variable rate application, there has been a number of studies that develop variable rate fertilizer application programs based on "management zones". Management zones are geographical areas that can be treated as homogenous so that input application and decision-making can be treated separately for each zone. These zones then serve as the basis for more precise variable rate application of fertilizer inputs.

To incorporate the risk of having below average or above average output prices in the model, we assign discrete probability values for each price situation and build four scenarios to analyze (Table 1). The first scenario (Scenario 1) is where all the three price situations are equally likely to occur. That is, the probability of having low, average, and high price is set at 33.33%. The second scenario (Scenario 2) is where the probability of having a low price situation is 60%, while the probability of having an average and high price situation is both at 20%. The third scenario (Scenario 3) is where the probability of having an average price is 60%, while the probability of having a low and high price situation is both at 20%. Lastly, the fourth scenario (Scenario 4) is where the probability of having a high price is 60%, while the probability of having an average and low price situation is both at 20%.

The mathematical modeling results that accounts for price risk are presented in Table 1. The first issue to note in these results is the P application difference between the UR and VR application methods. As suggested in the previous section, MZ1 is where the yield response is the highest. Hence, it is reasonable to expect that a lower amount of P would be required in this zone relative to the other zones (to get a comparable yield response). In fact, this is the case in Table 1 for all scenarios.

This study develops a spatial statistics-based approach for delineating management zones that can be used for a variable rate P application program. The spatial statistics approach to management zone delineation is a simple method that could serve as a guide for producers to recognize relevant spatial patterns in their field and manage it more effectively. An optimization/mathematical programming model is then utilized to evaluate the economic impact of a variable rate P fertilization strategy (based on the management zones delineated) versus the more traditional method of using a uniform rate for the whole field. Note that this mathematical programming model incorporates the output price risk for cotton lint and seed to account for the uncertainty that producers face in terms of these prices. The results of the model suggest that applying variable P rates based on the different response function for each management zone would result in higher yields and net returns relative to the traditional uniform rate application. Furthermore, this boost in net returns and yields is achieved with lower levels of applied P per acre, on average. Hence, more precise management of P based on the management zones delineated using a spatial statistics approach may also have potential implications for reduction of fertilizer runoff and non-point source pollution.

Even with these interesting insights, however, we must emphasize that the results presented above are preliminary. For example, the yield response function for both the traditional uniform rate and variable rate approaches was only estimated using OLS procedures. Not taking this spatial autocorrelation into account may result in incorrect inferences and may likely affect our results. Hence, further study needs to be done with regards to more advance econometric techniques for estimating the yield response functions.

Table 1. Profitability of Uniform Rate (UR) vs. Variable Rate (VR) P Application: Four Price Risk Scenarios

	P application (lbs/acre)			Yield(lbs/Acre)	Expected Profit ($/acre)	Profit Differential (VR-UR)
	MZ1	MZ2	MZ3			
Scenario 1						
UR	28.83	28.83	28.83	694.06	$352.00	$8.23
VR	16.70	28.83	0	725.69	$360.23	
Scenario 2						
UR	28.57	28.57	28.57	693.91	$268.83	$3.66
VR	16.45	28.57	0	789.62	$272.49	
Scenario 3						
UR	28.82	28.82	28.83	694.06	$346.77	$7.96
VR	16.69	28.82	0	793.78	$354.73	
Scenario 4						
UR	28.99	28.99	28.99	694.14	$438.31	$13.06
VR	16.87	28.99	0	797.05	$451.37	

TITLE:

Effect of Nematode Stress, Water, and Nitrogen on Cotton Yields and Reflectance Patterns at AG-CARES, Lamesa, TX, 2004

AUTHORS:

Terry Wheeler and Kevin Bronson, Associate Professors, Texas Agricultural Experiment Station, Lubbock

METHODS AND MATERIALS:

Variety:	FiberMax 989 BR
Water:	3 levels, trying to match 50, 75, and 100 % ET (evapotranspiration).
Fertilizer:	2 levels, adequate nitrogen fertilizer, and no nitrogen fertilizer.
Nematode stress:	used no control, 5 lbs of Temik 15 G at planting, and fumgiation with Telone II at 5 gals/acre (in the fall of 2003) + 5 lbs of Temik 15 G/a at planting. The fumigation treatment provides almost complete control of root-knot nematode, Temik 15G alone provides partial control of root-knot nematode.
Plots:	162 total, 50' long x 8 rows wide, with 9 replications of each water/nitrogen/nematode control treatment.
Data collected:	images with an AISA hyperspectral sensor were taken on July 2, July 8, July 24, Aug. 2, Aug. 17, and Sept. 7. Each plot was sampled for nematodes on July 9 and Nov. 9 and leaf samples were taken for nitrogen analysis on Aug. 19. Yields were collected on Nov. 8.

RESULTS AND DISCUSSION:

Nematode stress was more important in 2004 than the irrigation or nitrogen treatments. The fumigation treatment yielded 1,453 lbs of lint/a compared with no nematode control (1,283 lbs of lint/a) and 5 lbs of Temik 15G (1,290 lbs of lint/a). Fumigation increased yields by13%, or 170 lbs of lint/a. Yield differences between irrigation treatments only resulted in a 27 lbs/a improvement (1,326 vs. 1,347 vs. 1353 for low, moderate, and high irrigation levels), and nitrogen differences resulted in a 56 lbs/a difference (1,370 vs. 1,314 lbs of lint/a for +/- nitrogen treatments). Although nitrogen was less important than nematode stress, the nitrogen stress showed up on the remote sensing images at all dates except July 2. Nematode stress did not show up until the last image (Sept. 7). Even when nematode stress was visible, the magnitude of effect compared to nitrogen was smaller (Fig. 1). The near-infrared part of the spectrum, which covers 750 to 900 nm, is usually a good indicator of biomass differences.

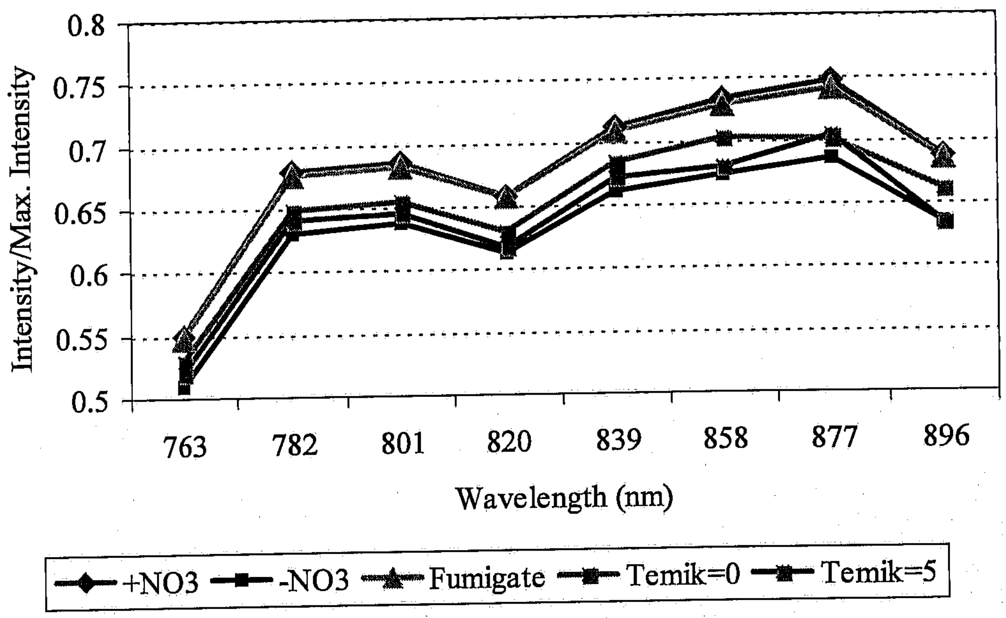

Fig. 1. Intensity of reflected light from a cotton field as a function of nitrogen (NO3) and nematode stress.

TITLE:

Nematicide Test with Temik 15G, STAN, and a Biological Product at AG-CARES, Lamesa, TX, 2004

AUTHORS:

Terry Wheeler, Associate Professor, Texas Agricultural Experiment Staiton, Lubbock

METHODS AND MATERIALS:

Planting:	May 4
Variety:	PM 2326 BG/RR
Replication:	8
Plot size:	55' long, four-rows wide (40" center)
Nematode Treatments:	All seed had Dynasty CST 1.04 FS + Cruiser 5 FS 1) None; 2) STAN (Syngenta's seed treatment against nematodes) at 0.12 mg a.i./seed; 3) STAN at 0.15 mg a.i./seed; 4) Temik 15G at 3.5 lbs/a in the furrow at planting; 5) Temik 15G at 5 lbs/a in the furrow at planting; 6) Equity (a biological nematode product) with 2 oz/a in the furrow at planting and 2 oz at 14 days after planting, over the top of the cotton; 7) Equity with 4 oz/a in the furrow at planting.
Ratings:	galls on 10 plants/plot at 30 days after planting; plant height, nodes, and height to node ratio at pinhead size square and first flowers; soil samples assayed for root-knot nematode on July 5 and October 26; and yield (harvested on Oct. 19).

RESULTS AND DISCUSSION:

Root-knot nematode pressure was high at this site, as seen by the midseason nematode population density (Pm, Table 1). However, the plants emerged uniformly (average of 3.3 plants/ft of row) and never were affected by early season winds. The plants got off to a great start, and did not appear to be limited by the nematodes. Plots treated with Temik 15G at 5 lbs/a had taller plants at first flower than the untreated check, the biological treatments, and STAN (Table 1). However, this did not result in any yield advantages, all treatments yielded similarly (Table 1).

Trt	lbs of lint/a	Root-knot nematode per 500 cc soil at midseason	Root-knot nematode per 500 cc soil at harvest	Plant height first flower
1	1,050	12,285	2,170	51.9 c
2	1,036	8,100	2,575	53.7 bc
3	998	10,215	1,450	51.3 c
4	1,011	11,040	1,900	56.8 ab
5	991	10,890	1,463	58.4 a
6	1,078	17,715	2,650	52.0 c
7	1,080	10,860	2,275	51.5 c

Different letters indicate that treatments were significantly different at $P = 0.05$.

TITLE:

Effects of Preplant Applications of Clarity, 2,4-D, and Distinct on Cotton Growth and Yield at AG-CARES, Lamesa, TX, 2004.

AUTHORS:

John Everitt and Wayne Keeling, Professor and Research Associate

MATERIALS AND METHODS:

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

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 either year when 2,4-D was applied at any preplant interval. Clarity applied 2 WBP resulted in injury <5%; however, significant crop injury resulted from the high rate of Clarity applied 1 WBP in both years. Distinct applied 1 or 2 WBP resulted in significant cotton injury in 2003; however, in 2004 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; 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 2003, above average heat unit accumulation and excellent fall conditions appeared to allow cotton to compensate for early season injury.

Although injury observed in 2003 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.

Table 1. Cotton injury and yield as affected by Clarity, 2,4-D, and Distinct applied preplant in 2003 and 2004.

			Cotton Injury (%)										Cotton Stand(#/m)		Yield (lb/A)	
	Timing	Rate	May 19		Jun 10		Jul 9	Jul 16	Oct 10	Aug 18	May 19			
Treatment	WBP	(prod./A)	'03	'04	'03	'04	'03	'04	'03	'04	'03	'04	'03	'04
Non-treated	---	---	0	0	0	0	0	0	0	0	14	13	932	1197
Clarity 4L	4	4 oz	5	0	2	0	0	0	0	0	12	12	820	1220
Clarity 4L	4	8 oz	0	12	8	3	2	0	0	0	11	12	818	1183
Distinct 70 WG	4	2 oz	0	20	5	5	0	2	0	0	13	10	890	1127
Distinct 70 WG	4	4 oz	8	40	7	28	0	5	0	0	12	10	834	1029
2,4-D 4EC	4	1 pint	0	0	0	0	0	0	0	0	13	11	850	1179
Clarity 4L	2	4 oz	0	0	2	0	0	2	0	0	12	12	889	1210
Clarity 4L	2	8 oz	15	13	16	0	2	3	0	0	12	11	753	1135
Distinct 70 WG	2	2 oz	39	12	75	12	25	3	0	2	12	11	865	1029
Distinct 70 WG	2	4 oz	54	33	81	45	35	27	2	22	10	12	777	897
2,4-D 4EC	2	1 pint	0	0	0	0	0	0	0	0	14	13	920	1230
Clarity 4L	1	4 oz	6	12	15	5	5	2	0	0	11	11	797	1241
Clarity 4L	1	8 oz	40	70	58	33	15	25	0	18	11	69	868	932
Distinct 70 WG	1	2 oz	63	38	75	45	33	13	0	13	11	8	908	1075
Distinct 70 WG	1	4 oz	76	87	90	75	68	57	7	43	8	5	749	787
2,4-D 4EC	1	1 pint	3	0	0	0	0	0	0	0	12	9	862	1164
CV			42.48	38.0	24.99	31.22	70.06	54.04		60.67	13.22	16.56		10.66
LSD $_{(0.05)}$			11	14	9	8	10	8	NS	6	3	3	NS	196

TITLE:

Summary of Enterprise Records at AG-CARES, Lamesa, TX, 2004

AUTHOR:

John Farris, County Extension Agent-Agriculture, Emeritus, Dawson County

SUMMARY:

Farm Enterprise records were maintained on four center pivot irrigated areas or pies, and on dryland corners and on adjacent dryland farms on cotton and grain sorghum. Cropping systems established were Conventional Tillage Peanuts, Solid Row, LEPA Irrigated; Terminated Rye-Cotton-Peanut-Rotation, Solid Row, LEPA Irrigated; Terminated Rye-Cotton Rotation, Solid Row, LEPA Irrigated; Conventional Tillage Cotton, Solid Row, LEPA Irrigated; Conventional Tillage Cotton, Solid Row, Dryland; Conventional Tillage Grain Sorghum, Solid Row, Dryland. Enterprise records were maintained on all production systems, with net returns per ground acre ranging from a high of $182.56 to a low of ($18.84). Enterprise records help to show the disparities between cropping enterprise rather than one overall farm net return of $108.65.

The availability of enterprise records showed a positive advantage between cropping areas. The irrigated cropping areas averaged $166.64 and the dryland cropping areas averaged $31.32 net per ground acre. Table 1 shows AG-CARES Summary of Farm Enterprise Records Analysis.

The maintaining of enterprise farming records may be one of the best tools available to producers to increase profits and sustain their farming operations. But even good records can not compensate for lack of moisture and low commodity prices.

OBJECTIVE:

Cotton producers face increasing economic decisions each year. An accurate set of farm enterprise records is needed to make meaningful decisions.

To maintain farm enterprise records on all cropping system at AG-CARES in a practical manner available to all producers, thereby showing the need to distinguish between cropping systems, farms, etc.

MATERIALS AND METHODS:

Actual cost per acre was maintained on Quicken Deluxe 2003 and Lotus 1-2-3® for windows for all different farm enterprise areas at AG-CARES.

Cost for fuel, labor and farming equipment were charged out at 75% of the most common custom rate as established by the Texas Agricultural Statistics Service. Cash land lease was charged at $21.40 per acre for dryland and $55.20 per acre for irrigated.

All farm management and operations were conducted by the Lamesa Cotton Growers membership with the guidance of the executive committee and with the cooperation of the Texas Cooperative Extension and Texas Agricultural Experiment Station personnel. Some spraying and harvesting operations were performed by custom operators and charged out at their normal rates per acre.

All chemicals or other inputs donated to AG-CARES Farm were charged out at the rate producers would have to pay for that product in Lamesa, Texas.

RESULTS AND DISCUSSION:

Four irrigated cropping areas and conventional tillage dryland cotton and grain sorghum were established. Circular rows were established for LEPA irrigation, with a 40" solid row pattern. All areas were evaluated for yield, fiber quality, and net returns per acre.

The cropping areas being evaluated include:

1) Conventional Tillage Cotton, Solid Row, LEPA Irrigated.
2) Terminated Rye-Cotton Rotation, Solid Row, LEPA Irrigated.
3) Terminated Rye-Cotton Rotation, Solid Row, LE)PA Irrigated.
4) Conventional Tillage Peanuts, Solid Row, LEPA Irrigated.
5) Terminated Rye-Cotton-Peanut Rotation, Solid Row, LEPA Irrigated.
6) Conventional Tillage Cotton, Solid Row, Dryland Corners.
7) Conventional Tillage Cotton, Solid Row, Dryland.
8) Conventional Tillage Grain Sorghum, Solid Row, Dryland.

These cropping areas attempt to limit tillage operations to reduce input costs while conserving soil moisture and maintaining crop residue on the soil surface as a means to protect young cotton plants.

Farm enterprise records of actual cost were maintained on all the different cropping areas.

Expense and income for each of the cropping areas varied greatly between enterprise records. Inputs were charged to each enterprise monthly as bills were paid using Quicken Deluxe 2003. Lotus 1-2-3® for windows was used to analyze records on a per acre and yield basis.

TABLE 1. AG-CARES SUMMARY OF FARM ENTERPRISE RECORDS ANALYSIS

	CONVENTIONAL TILLAGE COTTON SOLID ROW LEPA IRRIGATED	TERMINATED RYE-COTTON ROTATION SOLID ROW LEPA IRRIGATED	CONVENTIONAL TILLAGE PEANUTS SOLID ROW LEPA IRRIGATED	TERMINATED RYE-COTTON-PEANUT-ROTATION SOLID ROW LEPA IRRIGATED	CONVENTIONAL TILLAGE COTTON SOLID ROW DRYLAND CORNERS	CONVENTIONAL TILLAGE COTTON SOLID ROW DRYLAND FARM	CONVENTIONAL TILLAGE GRAIN SORGHUM SOLID ROW DRYAND FARM	AVERAGE OVERALL TOTAL OF ALL CROPPING SYSTEMS
INCOME PER LAND ACRE	$515.94	$547.42	$618.52	$559.74	$215.19	$150.09	$46.05	$378.99
EXPENSES PER LAND ACRE	$342.90	$379.77	$475.21	$377.18	$135.15	$117.35	$64.89	$270.35
NET INCOME PER LAND ACRE	$173.05	$167.65	$143.31	$182.56	$80.05	$32.75	(-$18.84)	$108.65
	THIRTEEN YEAR AVERAGE	THIRTEEN YEAR AVERAGE	SEVEN YEAR AVERAGE	SIX YEAR AVERAGE	THIRTEEN YEAR AVERAGE (APH 425)	SEVEN YEAR AVERAGE (APH225)	SEVEN YEAR AVERAGE	

* Total income includes market price ,crop insurance, and all farm program payment of all types.(No disaster payments included)

TITLE:

Evaluation of Peanut Runner Varieties and Market-Types at AG-CARES, Lamesa, TX, 2004

AUTHOR:

Todd Baughman, Texas A&M Research & Extension Center-Vernon

METHODS AND PROCEDURES:

Planting:	April 26, 2004
Experimental Design:	Randomized complete block with 4 replications
Plot Size:	2, 40-inch rows by 75 feet (Varieties) 4, 40-inch rows by 50 feet (Market-Types)
Seeding Rate:	6 seed per foot
Date Dug:	Runner Varieties – 10/19/04 Spanish & Valencia – 9/21/04 Runner & Virginia – 10/19/04
Date Harvested:	Runner Varieties – 11/8/04 Spanish & Valencia – 10/13/04 Runner & Virginia – 10/28/04

RESULTS AND DISCUSSION:

Research was established to evaluate the yield and grade of twelve runner peanut cultivars. There were no yield differences between any of the varieties (Table 1). Carver, GP-1, Georgia 02C, and ANorden yielded over 4000 lbs/A. AT215, Georgia 02C, and Flavorrunner 458 all had a grade of 80 or higher. An additional study was conducted to evaluate the four market-types of peanuts grown in a side-by-side comparison in West Texas. The study also compared a new and old cultivar for each of the three market-types. Flavorrunner 458 had a yield of over 5000 lbs/A (Table 2). Tamrun OL02, NC7, and NC12C all yielded more than 4000 lbs/A. All Spanish and Valencia varieties yielded less than 4000 lbs/A. Flavorrunner 458 (81) and Tamrun OL02 (79) had a higher grade than all of the other varieties and market-types. Weather during digging and harvesting most likely significantly influenced the results of these trials this past year.

Table 1. Runner peanut yield and grade, AG-CARES, Lamesa, TX, 2004.

Variety	Yield	Grade	SMK	SS	OK	DK
	-(lbs/A)-	----------------	----------------	----(%)----	----------------	----------------
Carver	4437	78	70	8	1	1
GP-1	4433	78	63	15	1	0
Georgia 02C	4394	80	70	10	1	0
ANorden	4337	79	63	15	1	1
AT 1-1	3938	77	67	11	1	1
AT215	3903	81	68	13	1	0
AT127	3890	73	62	11	1	1
Flavorrunner 458	3786	80	67	13	1	0
Tamrun OL01	3782	78	67	11	1	1
Georgia 03L	3743	76	63	13	1	0
Andru II	3734	78	61	18	1	1
Tamrun OL02	3135	77	68	9	1	0
LSD (P=.10)	NS	1	4	4	NS	NS
Standard Deviation	676	1	3	3	0	0
CV (%)	17	1	4	21	45	98

Table 2. Peanut yield and grade as affected by market-type and variety, AG-CARES, Lamesa, TX, 2004.

Variety	Yield	Grade	SMK	SS	OK	DK
		-(lbs/A)-		----------------	----------------	----(%)----
Flavorrunner 458	5018	81	65	17	1	0
Tamrun OL02	4562	79	69	11	1	0
NC 7	4543	75	68	7	2	1
NC 12C	4330	76	70	7	1	0
OLin	3030	76	63	13	1	1
Tamspan 90	2925	75	64	11	1	1
Valencia A	2309	72	65	8	2	1
Genetex 136	1923	70	64	7	1	1
LSD (P=.10)	749	3	NS	NS	NS	1
Standard Deviation	615	2	5	5	0	0
CV (%)	17	3	7	52	29	73

TITLE:

Peanut Tolerance to Prowl and Sonalan Applied Preemergence and Incorporated by Irrigation at AG-CARES, Lamesa, TX, 2004.

AUTHORS:

Peter Dotray, Wayne Keeling, John Everitt. Professor, Professor, Research Associate.

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 01
Application Dates:	Preemergence application on April 26
Initial irrigation:	0.5-inches on April 26
Rainfall (May to Oct):	15.65 inches
Irrigation in-season:	16.05 inches
Digging Date:	October 12
Harvest Date:	November 8

RESULTS AND DISCUSSION:

Prowl (pendimethalin) and Sonalan (ethalfluralin) are two dinitroaniline herbicides registered for use in peanuts. Dinitroanilines control annual grasses and small-seeded broadleaf weeds such as carelessweed (Palmer amaranth), tumbleweed (Russian thistle) and kochia. The effectiveness of these herbicides has been shown to be dependent on several factors including herbicide rate and the method used to incorporate the herbicide. 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 peanuts, there is an interest to use Prowl and Sonalan in a similar manner. Peanut tolerance to dinitroaniline herbicides 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.

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 (Table 1). Sonalan at 3 and 4 pints caused peanut injury early and mid-season (4 to 8%), but no injury was observed at harvest. Sonalan at 4 pints caused a reduction in canopy width mid-season, but no canopy reduction was observed at harvest. Plots treated with Prowl or Sonalan produced 5376 to 6369 lb/A and were not reduced when compared to the untreated check, which yielded 5992 lb/A (Table 1). Although not statistically different, plots treated with Prowl and Sonalan at 4 pints numerically produced the lowest yields. 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 (data not shown). Plots treated with Prowl or Sonalan produced 4041 to 4809 lb/A and were not reduced when compared to the untreated check, which yielded 4011 lb/A (data not shown). According to the current Sonalan label, this herbicide cannot be chemigated and information on the label suggests mechanical incorporation only. On the Prowl label, chemigation and surface applications followed by 0.5 to 0.75-inches of water are suggested. Since the 2003 and 2004 data produced slightly different results, this study will be repeated in 2005.

Table 1. Peanut injury and yield as affected by Prowl and Sonalan applied preemergence and activated by 0.75-inch of irrigation immediately after application.

Treatment	Rate	Rate	Peanut Injury (%)				Canopy Width (in.)		Yield
	(lb ai/A)	(prod./A)	May 24	Jun 10	Jul 5	Sep 24	Jun 10	Jul 5	(lb/A)
Non-treated	---	---	0	0	0	0	14	24	5992
Prowl 3.3 EC	0.825	2 pints	0	0	0	0	14	25	5813
Prowl 3.3 EC	1.24	3 pints	0	0	0	0	14	25	5746
Prowl 3.3 EC	1.65	4 pints	0	8	6	3	13	23	5376
Sonalan 3 EC	0.75	2 pints	0	0	0	0	14	25	5911
Sonalan 3 EC	1.125	3 pints	0	4	5	0	12	23	6369
Sonalan 3 EC	1.5	4 pints	0	8	4	0	11	23	5580
$LSD_{(0.05)}$			NS	2	2	2	2	NS	NS

TITLE:

Peanut Tolerance to AIM and ET at AG-CARES, Lamesa, TX, 2004.

AUTHORS:

Peter Dotray, Wayne Keeling, Marty McCormick, Lyndell Gilbert. Professor, Professor, Graduate Research Assistant, Technican II.

MATERIALS AND METHODS:

Plot Size:	4 rows by 30 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Planting Date:	April 26
Variety:	Flavor Runner 458
Application Dates:	Early postemergence (31 days after planting (DAP)), May 27; Late postemergence (120 DAP), August 24
Rainfall (May to Oct):	15.65 inches
Irrigation in-season:	16.05 inches
Digging Date:	October 12
Harvest Date:	November 8

RESULTS AND DISCUSSION:

In 2004, Spartan 4F (chemical name sulfentrazone) was labeled for use in the southeast (Alabama, Georgia, North Carolina, South Carolina, Virginia, and Mississippi) after several years of testing. 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.

FMC has applied for a label for AIM (chemical name carfentrazone). Both sulfentrazone and carfentrazone belong in the PPO family of herbicides. Until 2004, no university data had been collected on the use of Aim in peanut. Field experiments were conducted in 2004 to gain some experience with a herbicide that may be registered for use in peanut as early as 2005. Another new PPO inhibitor, ET (manufactured by Nichino America), may also be available in the future for use in peanut. Four tests in west Texas and one test in the Rolling Plains and south Texas were established in 2004. At Ag-Cares in 2004, AIM and ET were applied at 1.5 and 2.0 ounces per acre. Applications were made 31 and 120 days after planting. Peanut injury was evaluated after each application and yield and quality determined at the end of the growing season. In order to ensure that plant injury and yield and quality loss was the result of an herbicide treatment, plots were maintained weed-free.

Visual injury was observed following AIM and ET applied early postemergence regardless of rate. Injury ranged from 47 to 62% following AIM treatments and 35 to 40% following ET treatments 14 days after treatment. All peanut injury decreased over time, but was still visible at harvest (2 to 7%). Visual injury from applications made at 120 DAP did not exceed 5%. Peanut yield was reduced following early season applications of AIM at 2 ounces and ET applied at 1.5 and 2 ounces and following ET at 2 ounces applied late season. This study and additional weed control studies using AIM and ET will be conducted in 2005 at several locations.

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

Treatment	Rate (lb ai/A)	Rate (oz/A)	Peanut Injury (%)					Yield (lb/A)
			Jun 10	Jun 24	Jul 22	Aug 30	Sep 24	
Non-treated	---	---	0	0	0	0	0	6591
AIM + COC	0.024 + 1%	1.5	47	32	12	2	5	6066
AIM + COC	0.032 + 1%	2.0	62	38	13	4	7	5225*
ET + COC	0.00234 + 0.5%	1.5	35	28	10	4	2	5795*
ET + COC	0.00313 + 0.5%	2.0	40	37	13	4	3	5705*
Gramoxone Max + Basagran + NIS	0.1875 + 0.25 + 0.25%	8 + 8	28	27	7	2	2	6621
AIM + COC	0.024 + 1%	1.5	--	--	--	3	3	6261
AIM + COC	0.032 + 1%	2.0	--	--	--	4	3	6050
ET + COC	0.00234 + 0.5%	1.5	--	--	--	5	5	5991
ET + COC	0.00313 + 0.5%	2.0	--	--	--	5	5	5870*
CV								5.91
$LSD_{(0.05)}$			6	6	3	1	2	607

*yield is less than the non-treated control based on $p \leq 0.05$.

TITLE:

Sesame Variety Trial at AG-CARES, Lamesa, TX, 2003-2004

AUTHOR:

Calvin Trostle, Texas Cooperative Extension—Lubbock, c-trostle@tamu.edu, (806) 746-6101; Ray Langham, Sesaco Corp., San Antonio, TX, rlangham@texas.net, (800) 737-2260

METHODS AND PROCEDURES:

Soil Type:	Amarillo fine sandy loam
Planting:	June 23, 2004
Previous Crop:	Cotton
Seeding Rate:	~35 seeds per foot, or 2.5 lbs./A using 'low rate' sorghum disc in JD air-vacuum planter ('Lo' range, DriveR 16, DriveN 28)
Plot Set-up:	Sox replicated plots, 2-40" rows X 120'
Harvest Area:	6 plots, 1 row each, 9' 7"
Fertilizer:	None
Herbicide:	None
Insecticide:	None
Rainfall:	See summary in AG-CARES report; 1.5" for June prior to planting; 10.6" from June 23 to October 1 (period of physiological growth); crop weathered an additional 8" of rain before harvest
Date Harvested:	December 21, 2004

PURPOSE OF THIS WORK:

Small acreages of sesame production in the Texas South Plains have existed for many years, but historical production has sometimes been limited by the late maturity of the varieties as well as shattering of seed from the capsules. Recent varietal improvements from Sesaco Corp., Paris, TX, have both shortened maturity and reduced shattering.

Sesame is of interest because it is, along with guar perhaps the most drought tolerant and heat tolerant crops that may be grown on the South Plains. Sesame is also insect resistant. The primary production limitation for sesame for many producers is the lack of any labeled herbicide. Producers considering sesame should note that sesame is not for weedy ground.

This trial tests the current recommended sesame variety for the Texas South Plains, S-26, as a newer variety S-28, and two experimental lines for adaptability and yield in West Texas.

RESULTS AND DISCUSSION:

The currently recommended commercial sesame variety for West Texas, S-26, yielded at 618 lbs./A although there was no statistical difference among yields of the four entries. Among three varieties with a two-year yield average, S-26 was first, although again there was no statistical difference. When excess shattering losses are factored in due to late rain-delayed harvest (~1 month), 2004 yields increased 9-14% (including over 100 lbs./A for XF6H).

Additional plant characteristics were measured to help evaluate sesame growth (not reported here). Due to the ample rain in 2004, plants were about 7" taller in 2003, however, actual harvest yields changed little from 2003 (yields corrected for shattering were significantly higher, however, in 2004). We believe season long cool, cloudy weather and lower seasonal accumulated heat units restricted growth. Indirectly, this aspect demonstrates that sesame is in fact probably more advantageous relative to other crops in dry years as long as the stand can be established.

Agronomically, there were some key comparisons of interest when correlations were determined. Based on individual harvest areas, there was only a slight positive correlation ($r = 0.12$) between yield and plants per acre. We did determine, however, that as plant population declined, mainstem node number ($r = -0.45$) and branches per plant ($r = -0.54$) plants compensated. However, only additional nodes per plant appeared to contribute to yield. Advice on target seeding rates and subsequent plant populations for sesame sometimes leans toward maintaining a higher seeding rate so that the small shallow-planted sesame seeds can work together to push against possible crusts at emergence. Emergence observations in this trial did not indicate difficulty with stand establishment.

Variety	Plants/ acre	Plant Height (in.)	Harvest Yield (lbs./A)	Average Shattering (%)	Shatter Corrected Yield (lbs./A)	2004 Gross inc. without adjustments for quality	2-Year Avg. Harvest Yield (lbs./A)
S-26	139,400 c	49.6 a	618 a	9.1 b	681 a	$170	632 a
S-28	262,900 a	50.5 a	621 a	10.0 b	691 a	$173	614 a
X 132	203,800 b	44.1 b	546 a	12.5 ab	622 a	$156	556 a
X6FH	226,500 ab	45.5 b	641 a	14.8 a	756 a	$189	---
Average	208,100	47.4	607	11.6	687		599
Coeff. Var. (CV), %	31.9	9.2	14.7	38.1	15.2		14.7
By Variety							
F test statistic	6.12	17.66	1.36	2.45	1.84		2.2
P-Value (P)	0.004	<0.0001	0.283	0.094	0.172		0.155
PLSD^ (0.10)	51,100	1.7	NS	4.0	NS		NS

^ Fisher's Protected Least Significant Difference (numbers in the same column followed by the same letter are not significantly different at the 90% confidence level).

Economic considerations: Crop value should be based on 2003 contract prices of $0.22/lb. for a first-time grower and $0.23/lb. for a repeat grower. Sesame pricing also includes premiums and deductions based on test weight, color, foreign matter, and breakage. As long as a combine is set properly, producers are probably more likely to receive premiums rather than discounts. Approximate gross value of this crop at the average per acre yield was $131/A. Input costs were minimal for one tillage pass, planting, one cultivation, hoeing, and combining. Contract growers receive assistance for trucking costs set at the time of contracting.

For more information about sesame check with Calvin Trostle, the Texas A&M—Lubbock website at http://lubbock.tamu.edu, or call Sesaco Corporation, (800) 737-2260.

TITLE:

Summer Annual Sorghum/Sudan Demonstration at AG-CARES, Lamesa, TX, 2004

AUTHORS:

Calvin Trostle, Texas Cooperative Extension—Lubbock, ctrostle@ag.tamu.edu, (806) 746-6101; Jim Barber, TCE-Lubbock; Danny Carmichael, TAES-Lubbock

METHODS AND PROCEDURES:

Soil Type:	Amarillo fine sandy loam
Planting:	June 23, 2004
Previous Crop:	Cotton
Seeding Rate:	~112,000 seeds per acre or about 5-8 lbs./A, depending on seed size, with air vacuum planter; planter was used to obtain good control of seeding, a plus in dry conditions for stand establishment vs. using a drill
Plot Set-up:	4 rows X 60'
Harvest Area:	2 rows X 6'
Fertilizer:	None
Herbicide:	None
Insecticide:	None
Rainfall:	See summary in AG-CARES report; 1.5" for June prior to planting; 4.6" from June 23 to harvest #1 on Aug. 25th; regrowth yield, ~8" through Nov. 9
Date Harvested:	#1, August 25, 2004 (4-6" cutting height); #2, November 9, 2004

PURPOSE OF THIS DEMONSTRATION:

South Plains producers frequently inquire about summer annual forages for either grazing or baling. If producers plan to graze or possibly take multiple cuttings then sorghum/sudans, which re-tiller better than forage sorghums, are a preferred choice. As in 2003, we opted to plant the study with a planter as moisture conditions at planting were considered good, but with listed ground we expected problems getting plant establishment on all rows if drilled.

Many producers are still not familiar with the class of forages known as brown midrib (BMR) sorghum/sudans and forage sorghums. These BMR forages have less lignin, an indigestible component of forages even for ruminants, hence they are more palatable to livestock. Grazing demonstrations of these BMR forages in other South Plains counties have highlighted livestock grazing preference for BMR forages. Also, photoperiod sensitive forages, which head only in October regardless of planting date in response to increased darkness, were included.

The hybrids chosen for this study represent several forage types including conventional sorghum/sudan, small seeded sorgo-sorghum/sudan (three-say cross), as well as brown midrib (BMR) and photoperiod sensitive (PS) sorghum/sudans.

RESULTS:

Growers in the Dawson Co. region should consider the purpose of any forage, i.e. what type of animal the forage will be fed to or whether a hay buyer understands and is willing to pay for quality. Protein content of the more advanced hybrids in this trial (late bloom), could still expect 13-14% crude protein albeit somewhat lower than those forages still in the vegetative stage.

Seed size differed among the hybrids, which can affect planting rates if using pounds per acre. The small seeded sorgo-sorghum/sudans typically run in the 22,000-25,000 seeds/lb. range represented in this trial. Producers should account for this if seeding smaller seeded forages and thus reduce seeding costs. Because plants per acre were higher for small-seeded sorghum/sudans, we expect that some of the seed might have been 'doubles' in the air vacuum planter.

These hybrids reached their first cutting on August 25, 64 days after seeding with dry weight forage yields averaging 2.9 tons per acre. Yields were slightly less for the sorgo-sorghum/sudan. Regrowth of the forage would normally be expected to be much more than was measured. However, the heavy rainfall after initial harvest also represented cooler, cloudier conditions, which limited subsequent forage production. The ratings of retillering were not consistent between the two dates observations were made.

Lodging—some BMR forages tend to lodge due to the soft stems containing less lignin. At the time of initial harvest (August 25th), there was essentially no lodging. When lodging ratings were conducted almost four weeks later, the BMR hybrids averaged more lodging than the other hybrids, but this was mostly due to NC+ BMR 44S having an average lodging of 45%. This degree of lodging is not normally observed until well after heading, as was the case here, and it should not affect high quality forage harvest or grazing.

Male sterile forages—two forages, NC+ Sweetleaf II and Dekalb SX-17 are considered male sterile forages. Hence, unless pollen comes from a different source, the heads will not produce grain. This is often tantamount to higher quality forage due to the retention of sugars, etc. in the leaves and stalk instead of making grain in the head. Male sterile forages are a choice of some forage growers for after frost grazing because the forage is better quality when grain is not produced.

Finally, as we noted in the 2003 AG-CARES summer annual forages report, Extension encourages growers in dryland forage production to consider using a planter rather than a drill, even if on 40" rows. Seed placement and stand establishment are key to adequate forage yields in the face of expected droughty conditions. If a drill is old and worn out seed placement is difficult, soil planting conditions are marginal in soil moisture, or if ground is uneven (listed), then a planter may achieve better results than a drill. It certainly can reduce risk! Grazing livestock will walk between rows as little as 20-24" apart. This habit preserves existing forage production and maintains potential for tiller regrowth.

For more information about summer annual forages check with your local Extension office, Calvin Trostle, or the Texas A&M—Lubbock website at http://lubbock.tamu.edu

Entry	Company	Hybrid	Hybrid type	Seeds/lb.	Photo-sensitive?	Brown MidRib?	Male Sterile?	Height (ft.) 8/25/05
1	Coffey Seeds	Sugar Queen III	Sorgo-sorghum/sudan	25,500	No	No	No	7.2 b^
2	NC+	Sweetleaf II	Sorgo-sorghum/sudan	22,500	No	No	Yes	8.3 a
3	Dekalb (Monsanto)	SX-17	Sorghum/sudan	16,600	No	No	Yes	7.3 ab
4	Coffey Seeds	Sugar Graze 2000	Sorghum/sudan	19,100	Yes	No	No	7.5 ab
5	Golden Acres	T-E Grazer II	Sorghum/sudan	14,800	No	No	No	8.3 a
6	Richardson Seeds	Sweeter-N-Honey BMR	Sorghum/sudan	16,300	No	Yes	No	5.7 c
7	Production Plus	Drystalk BMR	Sorghum/sudan	16,400	No	Yes	No	8.3 a
8	Seed Resource	SS 200 BMR	Sorghum/sudan	15,400	No	Yes	No	7.0 b
9	NC+	BMR 44S	Sorghum/sudan	14,800	No	Yes	No	7.3 ab
10	Sorghum Partners	Sordan Headless	Sorghum/sudan	15,600	Yes	No	No	6.7 b
11	Crosbyton Seed	GW104G	Sorghum/sudan	15,600	Yes	No	No	6.7 b
12	Garrison & Townsend	22053	Sorghum/sudan	13,900	Yes	No	No	6.7 b

^ Values in same column followed by same letter are not significantly different at 0.10.

Entry	Plants/acre	Dry Yield (lbs./A) 8/25/05	Growth Stage 8/25/05	Lodging % 9/20/04	Retiller Rating& 9/20/04	Retiller Rating& 11/9/04	Regrowth Yld. (lbs./A) 11/9/04	Cumulative Yield (lbs./A)
1	105,300 a	5,623 cde	Late bloom	5 c	3.5	3.7	1,143 a	6,767 cde
2	96,200 a	4,669 e	Late bloom	7 bc	3.3	3.3	1,198 a	5,867 e
3	72,600 bcd	5,842 cd	Vegetative	0 c	2.3	3.0	1,007 a	6,849 cd
4	63,500 d	6,034 bcd	Vegetative	0 c	2.7	2.7	1,089 a	7,123 bcd
5	75,100 bc	6,845 ab	Late bloom	7 bc	3.3	3.3	1,198 a	8,043 ab
6	74,800 bc	7,411 a	Late boot	2 c	2.8	2.7	980 a	8,391 a
7	67,500 cd	5,633 cd	Late bloom	15 b	3.3	2.3	1,035 a	6,668 cde
8	66,100 cd	5,236 de	Late bloom	9 bc	2.5	2.0	735 a	5,971 de
9	63,200 d	6,418 bc	Late bloom	45 a	3.5	2.7	1,007 a	7,425 abc
10	77,300 b	6,018 bcd	Vegetative	0 c	3.0	2.7	1,143 a	7,162 bcd
11	67,500 cd	5,216 de	Vegetative	1 c	2.5	1.3	653 a	5,869 e
12	80,200 b	5,777 cd	Vegetative	0 c	2.5	2.0	681 a	6,458 cde

& Retiller rating range from 0 = none, 3 = good, 5 = excellent.

F-Statistic	12.01	3.55		11.68			0.89	2.68
P-Value	<0.0001	0.0046		<0.0001			0.5620	0.0212
PLSD (0.10)	9,100	954		9			NS	1,195
Average	76,800	5,863		8			989	6,883
Coeff. Var (%)	18.1	16		1.8			36	15
Averages								
Sorgo-S/S	100,700	5,146		6.1	3.4	3.5	1,171	6,317
Conv. S/S	70,400	6,240		2.5	2.8	3.0	1,098	7,338
BMR S/S	67,900	6,175		17.7	3.0	2.4	939	7,114
PS S/S	75,000	5,670		0.3	2.7	2.0	826	6,496

APPENDIX

Detailed Growing Season Climate Data at AG-CARES, Lamesa, TX 2004

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	62.10	42.10	71.10	27.80	14.12	0.20	0.00	0.00	3.50
	2	76.80	38.40	76.00	13.60	5.64	0.23	0.00	0.00	10.90
	3	82.30	46.20	58.70	10.70	9.95	0.32	0.00	4.20	13.70
	4	88.30	52.50	63.10	8.30	9.54	0.36	0.00	10.40	16.70
	5	91.60	48.90	78.10	9.90	8.11	0.33	0.00	10.20	18.30
	6	86.70	56.90	94.30	22.70	9.59	0.27	0.00	11.80	16.80
	7	87.80	58.50	93.20	25.40	8.87	0.28	0.00	13.20	18.20
	8	87.40	62.30	89.30	26.30	11.55	0.30	0.00	14.80	19.80
	9	84.10	62.30	87.70	34.90	12.42	0.27	0.00	13.20	18.20
	10	89.90	62.50	89.30	18.10	12.03	0.32	0.00	16.20	21.20
	11	91.00	57.90	84.70	17.10	10.68	0.32	0.01	14.50	19.50
	12	92.70	67.00	90.60	9.20	12.74	0.41	0.00	19.80	24.80
	13	82.50	50.60	86.30	18.40	13.00	0.28	0.00	6.50	13.80
	14	71.40	44.90	78.90	31.90	8.94	0.22	0.00	0.00	8.20
	15	77.70	48.70	94.10	38.00	10.10	0.20	0.00	3.20	11.30
	16	79.50	61.20	83.80	40.30	13.14	0.24	0.00	10.30	15.30
	17	97.70	58.90	89.10	6.10	11.01	0.41	0.00	18.30	22.00
	18	99.70	65.30	88.20	8.30	11.59	0.42	0.00	22.50	25.20
	19	98.90	65.70	91.30	10.40	13.19	0.44	0.00	22.30	25.30
	20	87.40	63.90	90.10	32.40	13.50	0.30	0.00	15.70	20.70
	21	88.30	68.20	83.10	36.90	15.88	0.31	0.00	18.20	23.20
	22	98.10	66.20	88.50	6.50	13.97	0.46	0.00	22.20	25.60
	23	94.10	62.10	91.20	4.90	7.72	0.37	0.00	18.10	23.10
	24	100.40	65.80	92.10	5.50	10.66	0.44	0.00	23.10	25.40
	25	92.70	70.40	78.90	26.40	9.88	0.29	0.00	21.60	26.60
	26	95.60	65.80	89.30	13.80	7.90	0.32	0.00	20.70	25.40
	27	86.40	61.90	88.20	21.00	10.84	0.28	0.06	14.20	19.20
	28	91.90	53.40	80.30	10.80	7.34	0.34	0.00	12.70	18.50
	29	95.70	69.70	82.10	5.40	15.59	0.51	0.00	22.70	27.30
	30	89.30	60.10	35.90	7.60	11.20	0.42	0.00	14.70	19.70
	31	91.70	53.40	47.40	7.20	6.66	0.35	0.00	12.50	18.30
June	1	99.30	58.30	38.60	5.70	7.63	0.40	0.00	18.80	21.70
	2	102.90	63.70	73.40	9.10	12.94	0.50	0.00	23.30	24.30
	3	79.60	62.70	92.50	39.60	13.81	0.21	0.13	11.20	16.20
	4	92.70	59.80	95.60	24.10	9.76	0.32	0.00	16.20	21.20
	5	96.70	63.30	87.90	18.40	12.97	0.40	0.14	20.00	24.20
	6	93.50	63.80	87.20	22.30	6.44	0.29	0.08	18.70	23.70
	7	93.00	69.10	75.40	26.30	15.65	0.39	0.00	21.00	26.00
	8	90.30	68.10	86.70	29.20	14.20	0.31	0.00	19.20	24.20
	9	92.50	69.20	89.20	25.90	10.64	0.32	0.00	20.80	25.80
	10	98.30	71.20	82.70	9.80	12.83	0.44	0.00	24.80	28.10
	11	98.50	70.30	85.20	6.60	9.43	0.41	0.00	24.40	27.70
	12	98.50	67.30	90.20	11.10	10.96	0.38	0.00	22.90	26.20
	13	100.20	63.10	84.20	5.80	8.48	0.39	0.00	21.70	24.00
	14	102.10	66.30	91.80	9.50	9.26	0.40	0.00	24.20	25.70
	15	96.40	69.70	87.20	17.30	12.64	0.40	0.00	23.10	27.30

Detailed Growing Season Climate Data at AG-CARES, Lamesa, TX 2004

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
	16	96.20	69.10	82.00	26.40	12.93	0.38	0.00	22.70	27.00
	17	95.50	69.10	75.90	23.60	12.47	0.35	0.00	22.30	27.00
	18	94.80	62.30	96.90	24.80	10.63	0.31	1.16	18.50	23.50
	19	85.50	63.30	93.70	44.90	9.97	0.25	0.00	14.40	19.40
	20	92.60	66.80	85.30	22.40	7.22	0.28	0.00	19.70	24.70
	21	94.80	67.80	82.30	24.20	9.10	0.32	0.03	21.30	26.30
	22	77.40	63.90	83.00	45.80	9.19	0.20	0.00	10.70	15.70
	23	83.00	64.00	88.90	35.50	4.31	0.20	0.00	13.50	18.50
	24	84.20	65.10	84.00	30.20	5.10	0.17	0.00	14.70	19.70
	25	84.90	62.80	86.80	32.60	5.46	0.23	0.00	13.80	18.80
	26	85.20	60.70	91.70	30.30	7.10	0.26	0.00	13.00	18.00
	27	81.40	59.80	94.60	44.50	4.45	0.16	0.18	10.60	15.60
	28	78.50	62.70	93.70	53.30	7.46	0.16	0.03	10.60	15.60
	29	80.40	64.60	96.90	48.10	4.95	0.15	0.09	12.50	17.50
	30	91.60	66.00	94.80	20.80	6.24	0.27	0.00	18.80	23.80
July	1	97.90	68.80	94.80	10.60	7.27	0.34	0.00	23.30	26.90
	2	101.30	69.80	92.90	11.20	9.24	0.39	0.00	25.50	27.40
	3	100.70	70.60	85.30	9.70	9.44	0.41	0.00	25.70	27.80
	4	97.90	71.20	84.90	16.80	9.84	0.34	0.00	24.60	28.10
	5	97.20	69.40	82.80	22.00	9.62	0.34	0.00	23.30	27.20
	6	94.00	61.60	91.80	30.30	9.50	0.28	0.33	17.80	22.80
	7	94.60	65.00	81.10	22.30	9.69	0.34	0.02	19.80	24.80
	8	98.00	71.30	84.50	22.70	9.78	0.36	0.00	24.70	28.20
	9	94.70	70.10	89.90	26.60	11.11	0.33	0.00	22.40	27.40
	10	91.70	71.10	82.30	26.10	8.80	0.30	0.00	21.40	26.40
	11	92.10	68.00	80.60	23.10	9.44	0.34	0.00	20.00	25.00
	12	87.50	67.00	81.30	31.40	9.10	0.30	0.00	17.20	22.20
	13	89.10	66.60	83.50	34.20	6.43	0.26	0.00	17.80	22.80
	14	95.40	68.60	84.10	22.90	5.50	0.30	0.00	22.00	26.80
	15	96.70	67.90	50.90	14.00	5.69	0.33	0.00	22.30	26.50
	16	96.80	65.40	69.30	11.60	3.38	0.28	0.00	21.10	25.20
	17	94.10	65.80	75.20	27.10	5.83	0.29	0.00	19.90	24.90
	18	90.90	66.00	93.30	32.90	8.68	0.28	0.07	18.50	23.50
	19	95.60	68.40	89.20	26.60	6.01	0.28	0.00	22.00	26.70
	20	95.70	71.50	73.10	25.60	7.76	0.32	0.00	23.60	28.20
	21	92.60	68.50	86.80	27.20	4.84	0.26	0.00	20.50	25.50
	22	92.90	70.60	68.30	18.80	6.21	0.29	0.00	21.80	26.80
	23	90.90	70.30	78.70	28.40	4.29	0.25	0.00	20.60	25.60
	24	79.10	66.10	95.00	59.80	6.05	0.12	0.25	12.60	17.60
	25	66.60	60.10	96.80	88.50	8.69	0.06	0.91	3.30	8.30
	26	69.80	59.60	95.00	71.20	4.31	0.10	0.00	4.70	9.70
	27	72.90	64.30	97.50	85.20	4.84	0.08	0.55	8.60	13.60
	28	85.20	67.00	97.80	49.80	3.86	0.17	0.36	16.10	21.10
	29	80.10	63.70	96.20	49.50	4.88	0.18	0.03	11.90	16.90
	30	89.40	62.90	96.50	26.00	2.88	0.23	0.00	16.20	21.20
	31	89.30	64.50	93.60	26.80	3.42	0.23	0.00	16.90	21.90

Detailed Growing Season Climate Data at AG-CARES, Lamesa, TX 2004

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	90.60	66.60	94.30	39.40	2.96	0.19	0.00	18.60	23.60
	2	91.50	68.60	91.70	33.00	4.48	0.24	0.00	20.00	25.00
	3	92.30	71.10	85.10	32.60	6.10	0.26	0.00	21.70	26.70
	4	95.10	71.30	72.60	23.80	6.32	0.29	0.00	23.20	28.20
	5	88.10	70.10	87.90	41.50	5.67	0.24	0.00	19.10	24.10
	6	93.50	64.20	95.30	36.30	7.24	0.25	0.22	18.80	23.80
	7	83.80	64.00	96.70	47.50	5.31	0.20	0.80	13.90	18.90
	8	83.90	64.00	97.30	50.30	4.44	0.19	0.52	14.00	19.00
	9	84.30	66.90	97.40	48.00	2.96	0.19	0.00	15.60	20.60
	10	88.60	65.70	97.50	37.10	2.80	0.21	0.00	17.20	22.20
	11	79.80	63.50	95.10	43.40	6.69	0.21	0.04	11.70	16.70
	12	81.00	62.00	93.90	40.20	4.53	0.20	0.08	11.50	16.50
	13	83.30	62.70	93.80	39.20	4.21	0.21	0.17	13.00	18.00
	14	83.50	62.80	94.60	40.00	3.84	0.19	0.00	13.20	18.20
	15	80.70	63.20	93.70	44.10	6.46	0.19	0.00	12.00	17.00
	16	79.60	61.40	96.00	40.70	5.37	0.19	0.00	10.50	15.50
	17	83.50	59.80	87.20	40.80	5.26	0.20	0.00	11.70	16.70
	18	84.80	62.00	96.60	42.90	4.75	0.15	0.07	13.40	18.40
	19	86.80	63.80	98.10	43.30	2.59	0.18	0.00	15.30	20.30
	20	80.10	59.90	95.90	62.40	5.39	0.12	0.00	10.00	15.00
	21	81.60	61.60	98.00	57.70	6.86	0.13	0.00	11.60	16.60
	22	89.50	60.00	97.10	33.90	5.81	0.23	0.00	14.80	19.80
	23	97.20	66.60	96.50	14.80	6.52	0.28	0.00	21.90	25.80
	24	95.50	67.50	93.40	14.90	5.38	0.27	0.00	21.50	26.20
	25	93.70	67.30	86.50	18.40	4.59	0.25	0.00	20.50	25.50
	26	97.90	69.50	86.50	16.40	7.42	0.31	0.00	23.70	27.20
	27	95.90	70.20	81.10	27.00	6.75	0.26	0.00	23.10	27.60
	28	79.60	62.20	91.10	57.20	6.08	0.15	0.00	10.90	15.90
	29	85.40	62.30	95.40	41.60	3.79	0.18	0.00	13.80	18.80
	30	89.00	62.60	95.40	35.40	5.00	0.19	0.24	15.80	20.80
	31	74.00	62.60	95.80	60.30	3.00	0.08	0.00	8.30	13.30
September	1	80.10	63.20	96.80	27.00	3.08	0.16	0.01	11.70	16.70
	2	81.10	53.70	96.70	31.00	4.16	0.19	0.00	7.40	13.00
	3	83.20	61.70	95.10	43.20	6.94	0.19	0.00	12.50	17.50
	4	86.20	60.40	97.50	38.30	6.58	0.19	0.00	13.30	18.30
	5	90.30	62.90	89.00	21.80	4.94	0.21	0.00	16.60	21.60
	6	84.00	58.10	85.60	21.90	8.26	0.26	0.00	11.00	16.00
	7	80.80	50.40	86.90	21.10	5.47	0.21	0.00	5.60	12.90
	8	81.00	45.90	89.50	19.30	3.62	0.19	0.00	3.50	13.00
	9	84.10	46.20	89.30	14.80	2.79	0.18	0.00	5.20	14.50
	10	85.20	47.20	85.10	19.90	4.05	0.20	0.00	6.20	15.10
	11	88.00	54.30	85.60	28.60	3.88	0.19	0.00	11.20	16.50
	12	91.00	59.00	90.00	28.30	4.64	0.21	0.00	15.00	20.00
	13	90.40	58.00	88.70	19.50	6.49	0.24	0.00	14.20	19.20
	14	92.60	63.10	85.40	26.40	7.20	0.25	0.00	17.80	22.80
	15	92.50	64.80	91.30	22.90	5.31	0.23	0.00	18.70	23.70

Detailed Growing Season Climate Data at AG-CARES, Lamesa, TX 2004

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
	16	94.00	63.50	87.90	28.10	3.95	0.20	0.00	18.80	23.80
	17	93.40	62.60	85.80	24.20	5.80	0.24	0.00	18.00	23.00
	18	87.20	62.90	82.30	27.30	7.06	0.21	0.00	15.00	20.00
	19	83.20	71.60	83.20	50.80	10.52	0.17	0.00	17.40	22.40
	20	89.60	71.60	82.60	40.10	10.14	0.22	0.00	20.60	25.60
	21	78.80	64.30	95.50	60.10	7.51	0.12	0.26	11.50	16.50
	22	77.00	61.90	92.90	56.70	7.23	0.11	0.01	9.50	14.50
	23	79.40	61.10	94.30	50.10	4.62	0.14	0.00	10.20	15.20
	24	82.10	57.90	96.50	40.30	3.93	0.15	0.00	10.00	15.00
	25	64.70	56.50	97.30	79.10	5.73	0.04	2.23	0.60	5.60
	26	70.80	58.60	98.10	68.90	4.14	0.07	0.93	4.70	9.70
	27	66.30	58.60	98.20	78.50	4.15	0.05	1.36	2.50	7.50
	28	70.30	58.40	96.80	53.80	3.66	0.08	0.11	4.30	9.30
	29	74.70	56.20	90.60	42.10	3.52	0.13	0.00	5.50	10.50
	30	73.40	56.50	97.10	67.90	5.58	0.08	0.95	5.00	10.00
October	1	82.40	54.90	98.70	24.30	4.22	0.15	0.01	8.70	13.70
	2	66.20	49.60	92.90	57.70	4.97	0.09	0.05	0.00	5.60
	3	64.80	53.40	98.60	87.70	2.99	0.04	0.40	0.00	4.90
	4	75.20	61.60	98.90	65.80	4.10	0.08	0.01	8.40	13.40
	5	69.30	53.00	97.90	70.20	8.02	0.06	0.85	1.10	7.10
	6	68.00	53.20	98.70	69.80	2.98	0.06	0.34	0.60	6.50
	7	76.90	54.50	96.70	47.30	3.12	0.11	1.31	5.70	11.00
	8	78.30	55.30	98.70	36.60	3.08	0.11	0.02	6.80	11.80
	9	74.70	52.40	94.80	35.40	4.70	0.13	0.00	3.50	9.80
	10	71.90	50.80	96.70	38.90	4.85	0.11	0.00	1.40	8.50
	11	71.60	50.20	98.10	43.20	5.45	0.11	0.00	0.90	8.30
	12	75.60	45.40	97.60	39.20	3.52	0.12	0.05	0.50	10.30
	13	76.70	47.20	98.20	46.10	6.90	0.14	0.34	2.00	10.80
	14	69.10	38.70	95.00	27.00	6.72	0.14	0.00	0.00	7.00
	15	81.00	46.20	93.30	15.30	7.03	0.19	0.00	3.60	13.00
	16	67.00	42.30	87.40	37.60	5.35	0.11	0.00	0.00	6.00
	17	84.30	47.60	94.90	18.50	5.50	0.16	0.00	6.00	14.70
	18	81.20	50.00	80.80	17.60	6.57	0.19	0.00	5.60	13.10
	19	83.40	49.70	73.00	13.10	4.43	0.16	0.00	6.60	14.20
	20	87.40	49.10	79.20	11.60	4.51	0.18	0.00	8.20	16.20
	21	88.20	54.40	94.60	26.60	4.14	0.15	0.00	11.30	16.60
	22	71.90	58.30	94.70	55.40	7.72	0.08	0.00	5.10	10.10
	23	75.70	50.70	82.80	15.50	5.65	0.17	0.00	3.20	10.30
	24	80.50	49.20	93.50	25.40	5.98	0.14	0.00	4.80	12.80
	25	73.80	54.30	95.80	57.30	4.88	0.07	0.00	4.00	9.40
	26	82.10	63.20	97.30	36.70	6.60	0.14	0.00	12.70	17.70
	27	76.70	63.60	97.10	59.60	7.41	0.08	0.00	10.20	15.20
	28	79.50	62.10	96.90	57.30	8.91	0.11	0.00	10.80	15.80
	29	78.80	45.80	95.60	18.70	7.85	0.16	0.00	2.30	11.90
	30	73.70	40.50	72.40	14.80	3.76	0.12	0.00	0.00	9.30
	31	63.40	51.80	87.30	58.50	3.58	0.05	0.01	0.00	4.20

DAWSON COUNTY EXTENSION AGRICULTURE COMMITTEE

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Andy Bratcher, Vice Chairman

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Jerry Vogler
Allen Wells

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Result Demonstration Cooperators

Mark Boardman
Johnny Ray Todd

Arnold Keune
Mike Tyler

Kent Peterson
Donald Vogler

Dawson County Commissioners Court

Sam Saleh, County Judge
Jerry Beaty, Commissioner, Precinct 1
Tino Morales, Commissioner, Precinct 2

Troy Howard, Commissioner, Precinct 3
Foy O'Brien, Commissioner, Precinct 4

Cooperating Agencies

Farm Service Agency
Becki McIlwain, County Executive Director
Wayne Sisson, Ag Credit Manager

Natural Resources Conservation Service
Chad Reed, District Conservationist

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

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

WEATHER INFORMATION

The 2004 crop year for Dawson County was much better than the past few years. Record rainfall throughout 2004 provided farmers with beneficial moisture and potential for high yields. Early in the season, we were plagued with a drought causing germination problems in some of our dryland cotton acreage. Hailstorms damaged an estimated 30,000 acres in July and August. We harvested 251,500 acres which should produce 260,000 to 270,000 bales. The years total rain fall was 29.69 inches, with 17.67 inches from May thru October. Heat units for the growing season were below the 70 year long term accumulation by 197 heat units (May - October) which caused late maturity and damaged production and quality.

Irrigated crops were above average for most producers, most experienced higher yields than expected due to beneficial rainfall and a late freeze.

The harvest was extended due to high yields, late maturing cotton, and wet weather. These facts will cause ginning to continue until April 2005.

As always we were glad the 2004 crop year was over, and hopefully the 2005 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 17.79 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 56 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
AVERAGE	April 2	November 4	216 days

Cotton Crop Heat Unit Calendar for Dawson County - 2004

Comparison of the Long Term Average Heat Unit Accumulation with the 2004 Monthly Heat Unit (DD60) Accumulations at Lamesa, Texas

Time Period	May	June	July	August	Sept.	Oct.
1932-04 Long Term Average/Month	335	550	635	600	380	93[A/]
1932-04 Long Term Accumulation	335	885	1,520	2,120	2,500	2,593
1932-85 Long Term Average/Month	327	558	642	611	390	84
1932-85 Long Term Accumulation	327	885	1,527	2,138	2,528	2,612
1986-04 Long Term Average/Month	361	530	633	576	357	129[B/]
1986-04 Long Term Accumulation	361	891	1,524	2,100	2,457	2,586[B/]
2004 Average/Month	379	542	574	495	311	105
2004 Month Accumulation	379	911	1,485	1,980	2,291	2,396
2004 from May 10	310	852	1,426	1,921	2,232	2,337
2004 From June 1		542	1,116	1,611	1,922	2,027

[A/] 71 Year Average[B/] 17 Year AveragePrepared by Casey Barrett, CEA-AG

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

2004 Weather Data*

Average Temperature by Months 2000 through 2004

Temp	2000	2001	2002	2003	2004	Temp	2000	2001	2002	2003	2004
Jan.	44.73	38.61	42.31	41.98	55.10	July	81.44	83.82	78.60	80.40	78.47
Feb.	47.48	40.68	37.98	37.98	38.26	Aug.	79.95	79.92	81.10	80.77	75.95
Mar.	55.21	47.66	48.92	53.35	56.81	Sept.	71.74	70.74	70.52	67.85	67.65
Apr.	60.77	61.5	60.77	60.90	55.68	Oct.	61.40	62.24	60.24	65.13	62.87
May	75.00	72.10	69.21	71.52	71.77	Nov.	42.00	50.52	46.39	49.53	45.68
June	73.37	78.40	75.97	72.45	75.55	Dec.	37.70	42.81	41.34	41.63	41.21

2004 Monthly Average Temperature - 60.42*From Lamesa Reporting Station

Peanut Crop Heat Unit Calendar for Dawson County - 2003

Comparison for the Long Term Average Heat Unit Accumulation with the 2003 Monthly Heat Unit Accumulations at Lamesa, Texas

TIME PERIOD	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
1993-04 Long Term Avg/month	223	520	670	762	720	505	240
1993-04 Long Term Accumulation	223	743	1,413	2,175	2,895	3,400	3,640
2004 Average/Month	176	512	666	705	647	453	246
2004 Month Accumulation	176	688	1,354	2,059	2,706	3,159	3,405

A/ 12 Year Average (DD-55, Max 95°F)Prepared by Casey Barrett, CEA-AG

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.

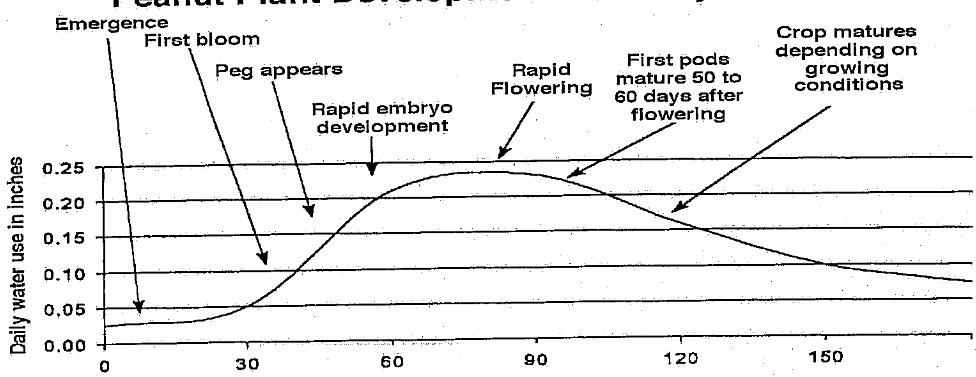
MATURATION PERIOD	110 TO 150 DAYS	IRRIGATE 1"/WEEK

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 73-Year Rainfall Record* 1932-2004

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		

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1959	.05	.17	.36	.42	3.80	2.00	3.27	1.65	1.53	4.12	.78	1.31	19.36
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
AVERAGE	.64	.69	.90	.91	2.28	2.72	1.99	1.75	3.00	1.94	.90	.73	17.79

*From: Lamesa Reporting Station.

DAWSON COUNTY FIRST BALE WINNERS
1947-2004

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

Cotton Production - 66 Year Record*

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

* 66 Year Average: Production Bales: 129,431 / Acres: 200,120 / Yield per acre: 323

SOME FACTS ABOUT DAWSON COUNTY

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

There are 373,377 acres in crop land, 108,175 acres in the Conservation Reserve Program, 87,207 acres in rangeland and pasture and 17,256 acres in roads, townsites, etc.

The county has 595 center pivot systems and 74,185 total irrigated acres.

Projected estimated gross agricultural income for 2004 is $128,549,000.00

The county should produce around 270,000 bales of cotton for 2004.

Peanut yields average about 3,300 pounds per acre.

ESTIMATED CROP ACREAGE FOR 2004	HARVESTED ACRES
Cotton - Irrigated	58,110
Cotton - Dryland	193,395
Grain Sorghum - Irrigated	650
Grain Sorghum - Dryland	20,330
Peanut - Irrigated	8,280
Haygrazer	4,580
Wheat - Irrigated	2,600
Wheat - Dryland	5,900
Alfalfa - Irrigated	1,630
Watermelon	60
Guar	1,970
Grapes	110
Rye	2,750
Sunflower	1,050