2012

Cotton and Peanut

On-Farm Trials

Gaines County, Texas

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Compiled and Distributed by: ***Manda Anderson, Extension Agent – IPM***

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Company Trials

2012 Gaines County Crop Production Review

A majority of the peanut and cotton fields where planted in late April and throughout the month of May. Gaines County was missed by several of the storms that passed through west Texas prior to planting. However, early May shower blessed parts of Gaines County with some much need rainfall. Rainfall totals ranged from 1.5 inches to as much as 4.5 inches. There was some hail mixed in with the rainfall and there were a few cotton fields hailed out. Gaines County was still a long ways from replenishing the depleted sub-soil moisture.

During the past couple of years we have seen an increase in the number of fields that are infested with wireworms. Wireworms are the soil dwelling larvae of click beetles. Problems with wireworms appeared to be greatest in fields following grain crops. Some growers were able to search in the soil and find some wireworms. Wireworms were feeding on the cotyledons prior to plant emergence. This was causing "shot" holes in the leaves. Wireworms were also feeding on the stem of the young plants. Most of the time they would feed on several areas of the stem and they did not chew the stem completely in half.

Hemileuca slosseri (Buckmoth) larvae were being found throughout Gaines County. The larva were pale yellow with tufts of black branched spines and a reddish head. They were being found in high numbers around homes, schools, barns, and Shinnery oak. The larvae's primary host is Shinnery oak (*Quercus havardii*).

The 2011 drought left several farmers skeptical of the weather and likelihood of making a bountiful crop in 2012. Thankfully the weather seemed to have taken a turn for the better and by June we had already surpassed the 2011 year-end rainfall totals. We still were a long ways from replenishing the full soil moisture profile. However, the rainfall that we received during the week of May 7, and on May 26 and June 4 had given us hope and a better outlook for the 2012 crop.

In early June peanuts were looking good and some of the earlier planted fields are starting to bloom. Cotton stages ranged from seed in the ground to squaring, with a majority of the cotton in the 2-4 true leaf stage. Most fields were benefiting from the rainfall. However, wind, hail, and blowing sand had damaged some young cotton plants. Wind damaged cotton was sometimes confused with thrips damage. Both caused the leaves to cup upwards. However, wind damaged leaves tended to have burnt edges. Whereas, thrips damaged leaves did not have the burned edges. Instead thrips feeding was causes deformation of the leaves. Thrips pressure remained relatively light in a majority of the fields. However, we had picked up some heavy populations in scattered fields.

In early June we were also seeing grasshoppers in pastures, CRP, and in corners of fields. However, we had not seen or heard of any damage from them. Weeds were the major concern at this time. With regards to resistant weeds, we had not confirmed any resistant weeds in Gaines County at this

point. However, there were a couple of fields that we were investigating in Gaines County. At this time we were also picking up Beet Armyworms is some of the non-Bt fields. Worm sizes ranged from just hatched to 1/4 inch.

By mid to late June we were needing another good rainfall event soon to keep the dryland fields growing and to replenish our depleted soil moisture. Peanut plants were starting to bloom. Cotton stages ranged from cotyledon cotton to squaring cotton, with a majority of the cotton in the 4-8 true leaf stage. We were still picking up a few beet armyworms in non-Bt cotton. However, the survival rate of beet armyworms was really low. In non-Bt fields, we were only finding one worm per plant. Most worms were dying form natural causes (weather, beneficial insects, low humidity, cannibalism). We were also picking up stink bug eggs and a few beneficial insects (mainly spiders and big-eyed bugs). Other than that insect pressure was relatively light. Conversely, nematodes were starting to cause significant damage to the root system in some cotton fields and concerns of weed resistance/tolerance continued to be a hot topic.

By early July the earliest planted cotton and peanut fields were starting to bloom and form small pods, respectively. July 3 & 4 brought scattered showers to the county. Rain ranged from 0 to 1+ inches. The town of Seminole did not receive any rainfall. The whole county was in desperate need of a good soaking rainfall. Most dryland fields were hanging on and waiting for the next good rain. Due to spotty showers and varying pumping capacities, there were huge differences in the irrigated crop stages and development. Cotton ranged from pre-squaring to blooming. Some peanut fields were pegging and starting to form small pods, while other peanut fields had not formed any pegs. Weeds were still the main concern at this time. We were starting to find light populations of cotton fleahoppers. We continued to find light populations of beet armyworms and boll worms in peanuts and non-Bt cotton. We were also finding an occasional cotton square borer. Beneficial insects (including spiders, big-eyed bugs, lacewings, and ladybird beetles) were relatively abundant and they were keeping most insect pests at bay.

In late July a majority of the fields had very low insect pest pressure. We were only picking up really light populations of the following insects in cotton: aphids, spidermites, bollworms, fall armyworms, and lygus. In peanuts we were picking up light populations of bollworms, fall armyworms, wireworms, grubworms, and southern corn root worm. We were still picking up relatively high populations of beneficial insects in most fields. The beneficial insects were likely one of the key players in helping to keep most insect pest at bay. Bollworm and Fall armyworm continued to be present in cotton and peanuts. Ages of worms range from one day old to 12 days old. Therefore, we were starting to see more of a continuous egg lay and overlapping generations. Several growers were battling heavy weed pressure that they were having trouble controlling with glyphosate. Verticillium wilt and Fusarium wilt had started to show up in some cotton fields. Peanuts were blooming, setting pegs, and forming small-medium pods. The cooler temperatures (in comparison to 2011) had helped with flower and fruit set. The fuller canopies had also helped to reduce temperatures and increase humidity in the canopy, which had created a more favorable environment for flowering, pollination, pegging and pod development. We were seeing some leaf spot in Spanish peanuts.

In early August, we were in desperate need of rainfall in order to supply the plants with moisture to help finish out the crop. We had already started to see some shedding of cotton squares and small bolls. This natural shedding process helps the plants to adjust their fruit load, which allows the plants to shift all of its effort into maturing the retained fruit and producing harvestable bolls. Several cotton fields were quickly approaching cutout. Those field that are at 4 - 5 Nodes Above White Flower (NAWF) were considered cutout. We did have some fields that had maintained 7 – 9 NAWF, however, these fields had above normal irrigation capacities. Peanuts were continuing to peg and form pods. We also had several fields with formed pods. The peanut crop looked significantly better than it did at this same time in 2011. The 2012 peanut crop had a much better start, which had resulted in larger canopies that are more conducive for peanut pollination and pegging. Verticillium wilt and Fusarium wilt incidence had increased in cotton fields. Insect pest pressure remained light. Beneficial insects numbers were still holding steady, despite there being very few pests to feed on. Weeds were still the main concern. Several hoe crews were helping to clean up weeds and some producers had also run a cultivator through the fields. Pod rot was starting to show up in more peanut fields. Most of the pod rot thus far had been caused by Pythium, but we were also picking up some pod rot caused by Rhizoctonia.

By mid-August a majority of the cotton had reached cutout and several fields had started to shed squares and small bolls. Cracked bolls had been observed in a couple of fields. Cotton stages ranged from 0-7 Nodes Above White Flower (NAWF), with a majority of the fields in the 2-4 NAWF. Overall, insect pest pressure was very light. We were finding very light populations of aphids, spider mites, bollworms, and armyworms. Beneficial insects (mainly spiders, green lacewings, and assassin bugs) were still hanging in there. August 13 storms brought barely measure rainfall to most of the county, with the except of the Loop area which received 2.5 inches of rain and Seagraves received 0.63 inches. For the most part, the peanut crop looked very good. We were still picking up light populations of "worms" in peanuts. We were also picking up more pod rot caused by Rhizoctonia and Pythium. We were observing salt damage in a couple of peanut fields. Salts were left behind as the irrigation water evaporated. This allowed for a buildup of salt in the root zone. Since we did not have any good flushing rains during the last two years, we had a double build up (2 years worth) of salts.

In late August two situations were being created out in the cotton fields. First were those fields that had previously reached cutout and then received above average rainfall, which resulted in regrowth. These fields would likely be harder to defoliate. Second were those fields that had received little to no rainfall. These fields were showing signs of excessive stress. The same scenario was being seen on those peanut fields which had not received any rainfall. A majority of our cotton crop had long past cutout (5 NAWF) and the plants had shed their remaining squares and small bolls. Peanut pod rot was the major concern in most peanut fields. Verticillium wilt was starting to show up in a few peanut fields. We were also continuing to see a significant impact of salinity in a couple of peanut

fields. *Kurtomathrips morrilli* were confirmed in three cotton fields in Gaines County and they had been reported in other counties north of Gaines County.

From mid-August to mid-September the crop had been on a role coaster ride in regards to Heat Unit (H.U.) accumulation. We had some days that were really warm followed by days that were cool. In regards to rainfall, we had slowly added to our rainfall total for the year. However, rainfall continued to be very spotty within the county. Hail had also been mixed in with some of the storms. A cotton field west of Seminole was completely defoliated, while the adjoining peanut field had significant leaf loss. Kurtomathrips were still being found in cotton fields throughout Gaines County. Small areas of infestation were quickly spreading throughout the whole field within a weeks worth of time. This rapid spread throughout the field usually occurred right after the water was cutoff on the field. Leaf spot was a concern at this time. This cool wet weather was conducive for leaf spot development. Verticillium wilt was becoming more evident in peanut fields.

We were also seeing a lot of salinity issues in peanuts. The salts accumulated at the edge of the leaf, causing the leaf edges to become necrotic and die.

A majority of the crop was harvest in late October and November.

Seasonal Heat Unit (H.U.) records for cotton (DD60s), National Climatic Data Center

						Avg. Monthly H.U.						Avg. Monthly Accumulated H.U.
Month	08	09	10	11	12		08	09	10	11	12	
May	319	310	308	362	393	338	319	310	308	362	393	338
June	626	549	645	748	644	642	945	859	953	1110	1037	981
July	586	613	533	756	629	623	1531	1472	1486	1866	1666	1604
August	536	619	623	792	651	644	2067	2091	2109	2658	2317	2248
September	260	295	443	379	379	351	2327	2386	2552	3037	2696	2600
October	105	118	140	174	157	139	2432	2504	2692	3211	2853	2738
November	16	6	2	20	37	16	2448	2510	2694	3231	2890	2755

Agriculture and Natural Resources

2012 Research Reports

TITLE:

Performance of commercially available Runner and Virginia peanut cultivars and advanced breeding lines under varying conditions.

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MATERIALS AND METHODS:

Field trials were conducted throughout Gaines Co. to evaluate the performance of Runner and Virginia cultivars and breeding lines under varying conditions, such as irrigation capacity, soil type and disease pressure (predominantly Verticillium and Pod rot). Trials were planted between 25-Apr and 5-May in conjunction with collaborating producers. Plots were 2 rows wide by 40 to 50 ft in length (depending on location). Treatments (cultivars and breeding lines) were arranged in a randomized complete design with four replications. All other production practices followed producer decisions or extension recommendations. Stand counts were made 21-28 days after planting (DAP). Verticillium wilt was monitored throughout the season and final ratings were taken just prior to plants being inverted. Peanuts were dug at maturity, allowed to dry in windrows (to ~10% moisture) and thrashed. Yields were estimated by weighing pods collected from each plot and grades were determined by shelling 250 g sub-samples and subjecting kernels to Federal Grading Procedures. All data were analyzed using ANOVA and means were separated via Fisher's Protected LSD ($P<0.05$).

RESULTS AND DISCUSSION:

Where Verticillium wilt did not develop at appreciable levels, pod yields averaged 5463 lb ac^{-1}, ranging from 4343 to 6301 lb ac^{-1} (Table 1). Yields of the cultivars AT-215, Florida-107 Florida Fancy (Virginia), TUFRunner 727, Flavor Runner 458, ACI-149 and Tamrun OL 07, and the breeding lines TX-1305, TX-1304, PR-2 and WT-090789 were similar averaging 5848 lb ac^{-1}. Grades ranged from 63.0 to 76.7% smk+ss for *WT-090808* an AT-215, respectively.

Table 1. On-farm Runner cultivar trial, Gaines Co. 1‡.

Cultivar	Pod yield (lb ac^{-1})		Grade (% smk+ss)	
AT-215	6,301	a	76.7	a
Florida 107	6,133	ab	71.6	d-f
TX-1305	5,996	a-c	72.9	a-f
Florida Fancy	5,916	a-d	71.2	ef
TUFRunner 727	5,898	a-d	72.4	b-f
Flavor Runner 458	5,878	a-d	75.4	a-d
TX-1304	5,778	a-e	74.3	a-f
ACI-149	5,719	a-e	75.8	a-c
Tamrun OL07	5,644	a-e	76.0	ab
PR-2	5,567	a-e	71.2	ef
WT-090789	5,495	a-f	72.0	c-f
Georgia 09-B	5,287	b-f	73.6	a-f
WT-090808	5,204	c-f	63.0	g
Tamrun OL11	5,193	c-f	75.7	a-c
TamrunOL02	5,169	c-f	73.7	a-f
Florida 07	5,066	d-g	65.0	g
Red River Runner	5,048	d-g	75.2	a-d
McCloud	4,960	e-g	72.9	a-f
WT-090814	4,672	g	70.4	f
WT-080883	4,343	g	74.0	a-f

‡Data are the means of four replications. Means within a column followed by the same letter are not significantly different according to Fisher's protected LSD.

Two other trials in Gaines Co. had appreciable levels of Verticillium wilt develop (Tables 2 and 3); however, onset and severity of the disease was lower than in previous years. At the Gaines Co. 2 location, disease incidence ranged from 8.8 to 36.3% (Table 2). The lowest disease ratings were associated with the breeding lines *PR-2* and *WT-090814* and highest for the breeding line *WT-080883*. Disease incidence for the commercial standards Flavor Runner 458 and Tamrun OL07 were 27.5 and 23.6%, respectively. Tamrun OL11 exhibited an intermediate level of disease (15.0%), as did ACi-149 (13.8%). Disease incidence was not correlated with yield (data not shown). Little separation was observed among the cultivars tested, the test averaged 3659 lb ac^{-1}. Yields were numerically highest for McCloud followed Florida-107, *TX-1304*, Florida-07, Florida Fancy (Virginia) Tamrun OL02, AT-215, Tamrun OL07, Tamrun OL11, Georgia 09-B, *WT-090789, PR-2* and TUFRunner 727. Yields were lowest for the susceptible check cultivar Tamrun OL06 (Spanish) and the breeding line *WT-080883*. No differences in grades were observed. The test average was 72.5% smk+ss.

Table 2. On-farm Runner cultivar trial, Gaines Co. 2

Cultivar	Wilt incidence (%)	Pod yield (lb ac^{-1})	Grade (% smk+ss)
McCloud	18.8 a-c	4,488 a	72.2 a
Florida 107	20.0 a-c	4,393 ab	73.4 a
TX-1304	12.5 bc	4,261 a-c	71.9 a
Florida 07	17.5 bc	4,152 a-c	73.7 a
Florida Fancy	25.0 a-c	4,051 a-c	70.1 a
TamrunOL02	11.3 bc	4,001 a-c	71.6 a
AT-215	18.8 a-c	3,932 a-c	71.7 a
Tamrun OL07	26.3 a-c	3,851 a-c	71.7 a
Tamrun OL11	15.0 bc	3,817 a-c	73.1 a
Georgia 09-B	13.8 bc	3,675 a-d	72.4 a
WT-090789	22.5 a-c	3,656 a-d	72.9 a
PR-2	8.8 c	3,629 a-d	71.9 a
TUFRunner 727	26.3 a-c	3,589 a-d	74.6 a
TX-1305	13.8 bc	3,405 b-d	71.6 a
ACI-149	13.8 bc	3,381 b-d	73.3 a
Red River Runner	17.5 bc	3,300 cd	72.1 a
WT-090814	8.8 c	3,297 cd	73.5 a
Flavor Runner 458	27.5 ab	3,252 cd	73.1 a
WT-090808	13.8 bc	3,227 cd	73.2 a
WT-080883	36.3 a	2,777 d	72.7 a
Tamnut OL06	26.3 a-c	2,702 d	71.8 a

‡Data are the means of four replications. Means within a column followed by the same letter are not significantly different according to Fisher's protected LSD.

In addition to Verticillium wilt, appreciable levels of pod rot developed at the other field trial in Gaines Co. (Table X). A rating scale (1-5) was developed (where 1 = no disease and 5 = 50% of the plot exhibiting pod rot symptoms) to rate the disease after plots were inverted. While this method may require some refining, differences among the cultivars were observed. Pod rot values ranged from 1.9 to 4.6. Pod rot ratings were lowest for the cultivar Tamrun OL07 and the breeding lines *TX-1305, PR-2* and *WT-090789* (with ratings of 2.1, 2.4 and 2.5, respectively). Information on pod rot is fairly limited; however, the observation with Tamrun OL07 having low levels of pod rot agree with other reports in 2009, 2010 and 2011. Vertcillium wilt was varied within the test area. The trial averaged was 23.3%. The highest levels of the disease were observed in Tamrun OL02, TUFRunner 727 and *WT-090808*. *WT-090789* Tamrun OL07 and *TX-1305* exhibited among the lowest levels of Verticillium wilt. Yields ranged from 2967 to 6006 lb ac^{-1} with a test average of 4903 lb ac^{-1}. Yields were similar for the cultivars Georgia 09-B, Tamrun OL11, Florida 07, McCloud and Tamrun OL07 and the breeding lines *WT-090789, TX-1305* and *TX-1304*.with an average of 5519 lb lb ac^{-1}. Grades ranged from 66.1% smk+ss for Florida 07 to 74.7% smk+ss for AT-215.

Table 3. On-farm Runner cultivar trial, Gaines Co. 3

Cultivar	Wilt incidence (%)		Pod rot (1-5 scale)		Pod yield (lb ac^{-1})		Grade (% smk+ss)	
Georgia 09-B	12.3	ef	4.6	a	6,006	a	70.3	c-g
WT-090789	5.7	f	2.5	g-j	5,972	ab	70.9	b-f
TX-1305	9.7	ef	2.1	ij	5,611	a-c	69.3	d-h
Tamrun OL11	16.2	d-f	3.9	a-d	5,560	a-c	71.3	b-f
Florida 07	36.7	bc	3.3	c-f	5,513	a-d	66.1	i
McCloud	16.7	d-f	3.1	e-h	5,256	a-e	68.5	f-i
Tamrun OL07	9.5	ef	1.9	j	5,121	a-f	73.8	ab
TX-1304	21.1	c-f	2.7	f-i	5,110	a-f	69.0	d-i
WT-090808	42.1	ab	3.6	b-e	5,058	b-f	67.1	hi
M-040149	13.4	ef	3.3	c-f	4,985	c-g	73.7	ab
Florida 107	23.7	c-e	3.6	b-e	4,983	c-g	71.4	b-f
ACI-149	13.6	ef	3.2	d-g	4,908	c-g	73.8	ab
Red River Runner	33.3	b-d	2.8	f-i	4,904	c-g	69.9	d-h
WT-090814	10.5	ef	3.0	e-h	4,616	d-g	71.9	a-d
TUFRunner 727	46.4	ab	4.1	a-c	4,581	e-g	67.8	g-i
PR-2	36.9	bc	2.4	h-j	4,390	e-g	71.9	a-e
TamrunOL02	58.8	a	2.7	f-i	4,207	g	73.5	a-c
AT-215	34.8	bc	4.4	ab	4,156	g	74.7	a
Flavor Runner 458	13.2	ef	3.1	d-h	4,155	g	73.5	ab
WT-080883	10.8	ef	2.9	e-i	2,967	h	71.1	b-f

‡Data are the means of four replications. Means within a column followed by the same letter are not significantly different according to Fisher's protected LSD.

Little disease was observed at the Gaines Co. 1 location and pod yields averaged 5353 lb ac^{-1}. Florida Fancy, Suggs *NC08070*, AT-07V and *AU-1101* provided yields of 6006, 5676, 5610, 5465 and 5386 lb ac^{-1}, respectively (Table 4). Yields were lowest for Jupiter at 4739 lb ac^{-1}. Grades averaged 68.1% smk+ss, ranging from 61.1% for *AU-1101* to 73.6% for Florida Fancy.

Table 4. On-farm Virginia cultivar trial, Gaines Co. 1

Cultivar	Pod yield (lb ac^{-1})		Grade (% smk+ss)	
Florida Fancy	6,006	a	73.6	a
Suggs	5,676	ab	67.7	a-c
NC08070	5,610	ab	72.5	ab
AT-07V	5,465	a-c	62.2	cd
AU-1101	5,386	a-c	61.1	d
Gregory	5,201	bc	68.2	a-c
Perry	5,108	bc	69.3	ab
NC08085	4,990	bc	70.8	ab
Jupiter	4,739	c	67.1	b-d

‡Data are the means of four replications. Means within a column followed by the same letter are not significantly different according to Fisher's protected LSD.

TITLE:

Evaluation of increased carrier volume for control of peanut pod rot in west Texas #1

AUTHORS:

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Eric Williams, Extension Assistant, Texas A&M AgriLife Extension Service

MATERIALS AND METHODS:

Plot size:	2 rows by 50 feet, six replications (40 in. centers)
Planting date:	1-May
Cultivar:	Gregory
Application dates:	75 and 105 DAP
Digging date:	10-Oct
Harvest date:	18-Oct

RESULTS AND DISCUSSION:

A field trial was conducted on a grower field in western Gaines County (32°43'23.06"N 103°2'7.46"W) near Hobbs NM to evaluate the performance of the fungicides Abound, Convoy and/or Ridomil at two carrier volumes (20 and 40 gal ac^{-1}). Rhizoctonia pod rot was the target disease. Overall, pod rot pressure was low due to the hot, dry conditions experienced throughout much of the growing season.

While low levels of pod rot were observed no differences among the fungicide programs or carrier volumes were observed (Table 5). Pod yields ranged from 3615 to 4774 lb ac^{-1} with an average 4206 lb ac^{-1}. Yields were greatest for treatments 8, 4 and 2, lowest for treatments 6 and 7 and intermediate for 3, 1 and 5. Grades were not different for any of the treatments averaging 71.8% sound mature kernels plus sound splits. The percentage of diseased kernels has been correlated to pod rot incidence in other studies (Woodward, unpublished). Although not significant, the levels of diseased kernels (DK) were numerically lower for all fungicide programs compared to the non-treated control (which approached 5%). Sclerotinia blight was also observed in this field; however, levels were low and did not differ among treatments (data not shown). Phytotoxicity was not observed throughout the duration of this trial (data not shown). Additional studies evaluating these products under higher disease pressure is needed.

Table 5. Effect of fungicide regimes comprised of Abound, Convoy and or Ridomil at two carrier volumes (20 and 40 gallons per acre) on leaf spot, Southern blight and pod rot control and yield, grade (smk+ss) and diseased kernels (DK)

Trt	Fungicide(s)	Volume (gal ac^{-1})	Application (DAP)	Pod rot (1-5 scale)		Pod yield (lb ac^{-1})		smk+ss (%)		DK (%)	
1	Control	n/a	n/a	1.8	a	3,887	b	74.2	a	4.0	a
2	Ridomil	20	75 & 105	1.5	a	3,719	b	71.8	a	3.4	a
3	Ridomil	20	75 & 105	1.5	a	4,250	ab	73.0	a	2.7	a
4	Abound	20	75 & 105	1.7	a	3,907	b	73.0	a	1.6	a
5	Abound Convoy	20	75 105	1.7	a	4,638	a	74.4	a	2.7	a
6	Ridomil	40	75 & 105	1.5	a	3,918	b	72.6	a	3.3	a
7	Ridomil	40	75 & 105	1.6	a	3,907	b	72.4	a	2.9	a
8	Abound	40	75 & 105	1.5	a	4,097	ab	72.4	a	2.0	a
9	Abound	40	75 & 105	1.6	a	4,731	a	73.1	a	2.9	a
10	Convoy	20	75 & 105	1.7	a	3,622	b	73.0	a	2.6	a
11	Convoy	40	75 & 105	1.6	a	3,900	b	72.7	a	3.0	a
12	Convoy Abound	40	75 105	1.5	a	3,688	b	71.4	a	2.2	a
			LSD (P≤0.10)	n.s.		794		n.s.		n.s.	

TITLE:

Evaluation of increased carrier volume for control of peanut pod rot in west Texas #2

AUTHORS:

Jason Woodward, Plant Pathologist, Texas A&M AgriLife Extension Service
Ira Yates, Technician, Texas A&M AgriLife Extension Service

MATERIALS AND METHODS:

Plot size:	2 rows by 50 feet, five replications (40 in. centers)
Planting date:	1-May
Cultivar:	Gregory
Application dates:	75 and 105 DAP
Digging date:	10-Oct
Harvest date:	18-Oct

RESULTS AND DISCUSSION:

A field trial was conducted on a grower field in western Gaines County (32°43'23.06"N 103°2'7.46"W) near Hobbs NM to evaluate the performance of fungicide programs comprised of Abound and Convoy applied at two carrier volumes (20 and 40 gal ac^{-1}). Rhizoctonia pod rot was the target disease. Overall, pod rot pressure was low due to the hot, dry conditions experienced throughout much of the growing season. While low levels of pod rot were observed no differences among the fungicide programs or carrier volumes were observed (Table 6). Pod yields ranged from 3615 to 4774 lb ac^{-1} with an average 4206 lb ac^{-1}. Yields were greatest for treatments 8, 4 and 2, lowest for treatments 6 and 7 and intermediate for 3, 1 and 5. Grades were not different for any of the treatments averaging 71.8% sound mature kernels plus sound splits. The percentage of diseased kernels has been correlated to pod rot incidence in other studies (Woodward, unpublished). Although not significant, the levels of diseased kernels (DK) were numerically lower for all fungicide programs compared to the non-treated control (which approached 5%). Sclerotinia blight was also observed in this field; however, levels were low and did not differ among treatments (data not shown). Phytotoxicity was not observed throughout the duration of this trial (data not shown). Additional studies evaluating these products under higher disease pressure is needed.

Table 6. Effect of fungicide applied at two carrier volumes (20 and 40 gallons per acre) on leaf spot, Southern blight and pod rot control and yield, grade (smk+ss) and diseased kernels (DK)

Trt	Fungicide(s)	Volume (gal ac^{-1})	Application (DAP)	Pod rot (1-5 scale)		Pod yield (lb ac^{-1})		smk+ss (%)		DK (%)	
1	Control	n/a	n/a	1.50	a	4,233	ab	71.4	a	4.7	a
2	Convoy	20	75 & 105	1.40	a	4,509	a	72.4	a	3.7	a
3	Convoy	40	75 & 105	1.45	a	4,290	ab	72.2	a	4.0	a
4	Convoy Abound	20	75 105	1.55	a	4,544	a	71.8	a	3.3	a
5	Convoy Abound	40	75 105	1.55	a	3,990	ab	70.8	a	4.2	a
6	Abound Convoy	40	75 105	1.45	a	3,693	b	71.6	a	3.5	a
7	Abound	20	75 & 105	1.55	a	3,615	b	71.8	a	3.0	a
8	Abound	40	75 & 105	1.50	a	4,774	a	72.8	a	3.4	a
			LSD ($P \leq 0.10$)	n.s.		794		n.s.		n.s.	

Efficiency of Abound FL Application over Time in a Peanut Field

Terry Wheeler (Texas A&M AgriLife Research, Lubbock), Manda Anderson (Texas A&M AgriLife Extension Service, Seminole), Jason Woodward (Texas A&M AgriLife Extension Service, Lubbock), and Scott Russell (Texas A&M AgriLife Research, Brownfield).

Fungicide studies conducted from 2009 – 2011 to manage pod rot caused by *Pythium* and *Rhizoctonia*, were aimed at comparing early, calendar-based fungicide applications versus threshold based applications. The early, calendar-based applications had reduced pod rot compared with threshold based systems. However, it was possible that the earliness of the application was the reason for better disease control, since the first application was made before many pods were present. The objective of the test conducted in 2012 was to examine the effect of application timing (earliness) on disease control and on chemical residue present on foliage, soil, and pods. To accomplish this, each treatment occurred at a different week of the season, with the first application made on 9 July and the last application made on 17 August. There were six treatments with a single application made at a different time during the summer, a nontreated check, and a well-treated check where two applications were made (19 July and 17 August). Plots were intensively sampled weekly to rate for pod rot, starting on 16 July and continuing until the end of August. Samples were sent for chemical (azoxystrobin) concentration analysis of certain treatments on 17 and 31 July and 15 August. Plots (1,000 ft. long and 4 rows wide) were thrashed with a 4-row machine and harvest weight was taken via load cells under a peanut trailer. Three small samples were taken from each harvested plot to grade.

Chemical analysis. The producer made an infurrow, at-plant application with Abound FL. There was still Abound FL present in the soil at the first sampling date (17 July, Fig. 1).

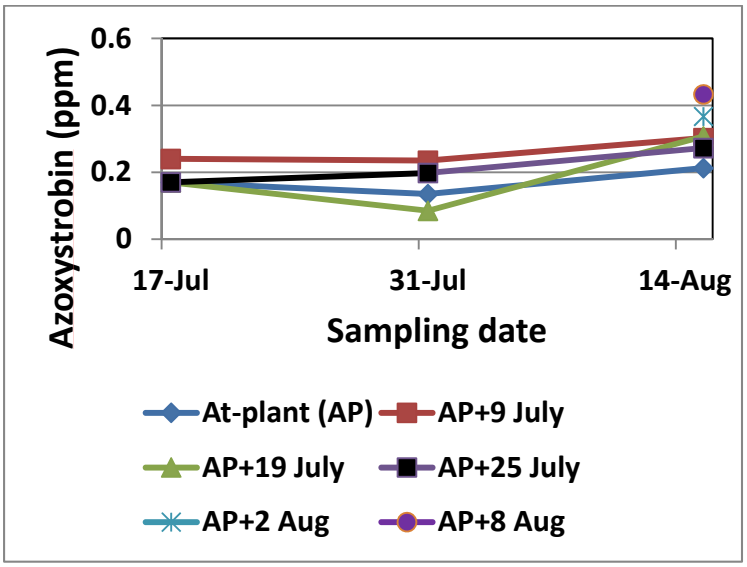

Figure 1. Concentration of fungicide in soil at three sampling times and six application times.

The fungicide was at similar concentrations in the soil throughout the sampling time and between all treatments, regardless of application time (Fig. 1). This indicates that some concentration of the fungicide remained from the at-plant application in the soil, and that subsequent applications during the growing season were not successful at increasing the concentration in the soil. The fungicide applications need to reach the soil to be able to control pod rot successfully. The only application that reached the soil was the one applied to the soil at planting.

Most of the fungicide remained on the plant foliage with the in-season applications (Fig. 2, Table 1). Unfortunately, Fig.2 clearly shows that an application was made over the entire test area between 31 July and 14 August, presumable by the producer. The nontreated check (◆) had a large increase in concentration (from 0 to 1.9 ppm) between the last two sampling times. A similar response was seen with the 9 July application (■) when the concentration was appropriately high at the first sampling date (17 July), and then dropped at the second sampling date (31 July), but inexplicably increased dramatically on the third sampling date. This only could have occurred if another application was made to those plots. Similarly, the concentration of azoxystrobin for applications made on 19 July and 25 July did not drop between the 31 July and 14 August sampling dates, as would have been expected. So, the objectives of the experiment will be more difficult to answer given the overtreatment that occurred in August.

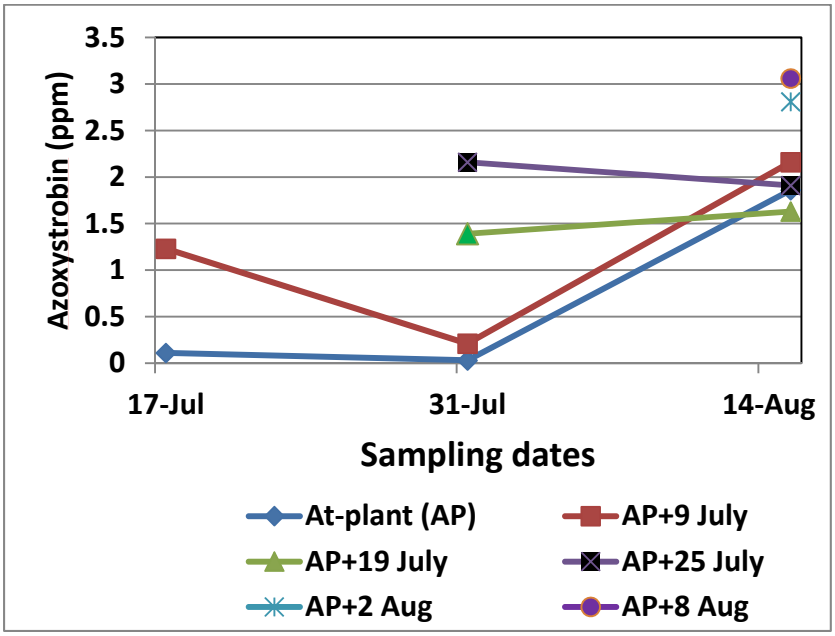

Figure 2. Concentration of fungicide on foliage at three sampling times and six application times.

Table 1. Percentage and concentration of azoxystrobin found on the foliage versus the pods.

Parameter	Sampling date	Fungicide application date					
		None	9 July	19 July	25 July	2 Aug.	8 Aug.
Foliage (F) ppm	17 July	0.1050	1.2325				
Pods (P) ppm	17 July	0.0125	0.1175				
% F/(F+P)	17 July	89.4%	91.3%				
Foliage ppm	31 July	0.0250	0.2075	1.3925	2.1600		
Pods ppm	31 July	0.0325	0.0386	0.0325	0.0375		
% F/(F+P)[a]	31 July	43.5%	84.3%	97.7%	98.3%		
% (F+P)[a]/(F+P)[b]	31 July	2.6%	11.2%	64.8%	100%		
Foliage ppm	15 Aug.	1.8600	2.1550	1.6250	1.9100	3.655	5.09
Pods ppm	15 Aug.	0.0650	0.0725	0.0925	0.1375	0.1025	0.1025
% F/(F+P)[a]	15 Aug.	96.6%	96.7%	94.6%	93.3%	97.3%	98.0%
% (F+P)[a]/(F+P)[b]	15 Aug.	37.1%	42.9%	33.1%	39.4%	72.4%	100%

[a]The foliage and pod concentrations were of the same application date.
[b]The foliage and pod concentrations were from the most recent application date to the sampling date (9 July on the 17 July sampling date; 25 July on the 31 July sampling date; 8 Aug., on the 15 Aug. sampling date).

The concentration of Abound FL in the soil remained constant for all the treatments and throughout all the sampling dates (or at least not significantly different), therefore it will be assumed that there was little contribution to the soil concentration by the fungicide applications made after planting. To examine how much of the application was staying on the foliage and how much was making its way to the pods, the concentration on the foliage was divided by the concentration on the foliage and pods, at the most recent application time to the sampling date. So, for the July 17 sampling date, there was 91% of the product on the foliage at 6 days after application. On the July 31 sampling date, there was 98.3% of the product on the foliage at 6 days after application. On the 15 August sampling date, there was 98% of the product on the foliage at 7 days after application. It appears that almost no product was making its way to the soil to protect the pods against *Rhizoctonia* and *Pythium* pod rot. The application of fungicide was made at 20 gal/acre and 30 psi.

In terms of how fast the fungicide was degrading on the foliage and pods, the July 31 sampling date provides the best information. There was a strong linear decline in fungicide concentration on the foliage over time (Fig. 3). The model predicted that immediately after application, the initial concentration was 2.88 ppm, and that the fungicide declined at a rate of 0.1217 ppm/day, or at a rate of 4.2%/day. There was very little fungicide left on the leaves by 3 weeks after application. It is not known if this decline would be typical with other strobilurin type fungicides meant to provide leaf spot protection. The situation on the pods was completely different, and there was no decline in concentration over time (Table 1), but there was also a very low concentration on the pods, probably below that necessary to give disease control.

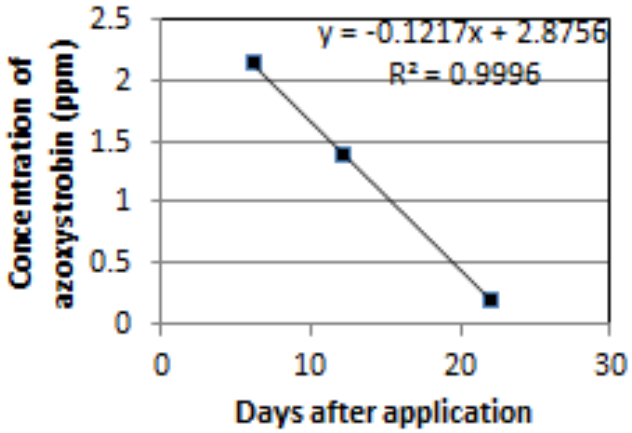

Fig. 3. Concentration of azoxystrobin on the foliage over time after fungicide applications.

Pod Rot over Time. Intensive sampling began on 11 July and terminated on 29 August, which was when the overtreatment with fungicide across the entire test area was discovered. There was no differences between treatments and pod rot at each sampling date, so they will be averaged to present the general dynamics of pod rot in this field during the sampling time (Fig. 4).

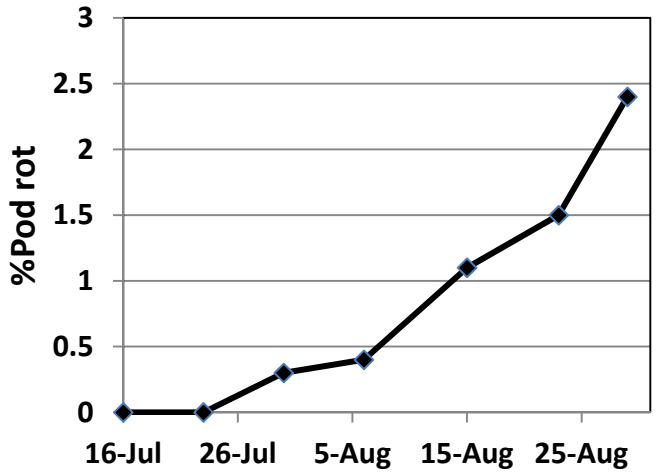

Figure 4. Pod rot over time in 2012.

In previous years, pod rot measurements over a number of weeks were analyzed to determine treatment differences, however, in 2012, there were only 1 or 2 measurements that were made when pod rot was present, and before the over-treatment occurred. So, even if the potential was there for treatment differences, there was not enough time to measure it definitely before the overtreatment was made. The primary fungus causing pod rot in 2012 was *Pythium* (Fig. 5), which is interesting because the dominant fungus in the other half of this circle in 2011 was *Rhizoctonia*.

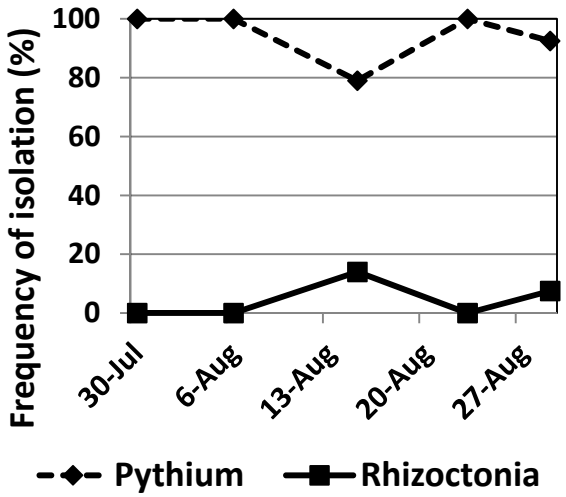

Figure 5. Frequency of *Pythium* and *Rhizoctonia* isolated from rotted pods in 2012.

Harvest. There were no treatment differences with respect to any of the measured parameters, including yield, grade, % damaged kernels, value ($)/acre (Table 2).

Table 2. Selected measurements taken from harvest in 2012.

Application Time	Yield (lbs/acre)	Value ($)/acre	Grade	% Damaged Kernels
None	5,779	1,008	71.1	0.5
July 9	5,514	969	71.3	0.8
July 19	5,513	969	70.8	0.6
July 25	5,600	991	71.6	0.4
Aug. 2	5,613	987	71.3	0.5
Aug. 8	5,573	979	71.9	0.6
Aug. 15	5,550	955	69.7	1.2
July 19 + Aug. 15	5,699	994	70.7	0.8

Conclusion

We did not achieve our original objective which was to determine if early applications of Abound FL would result in better pod rot control than later applications. However, we did determine that very little fungicide from all applications made it to the pods, so there was very little pod rot protection. The best way to improve pod rot control will require better applications, before we can determine the best time of the summer to make applications. The application volume of 20 gal/acre and 30 psi was not sufficient in 2012, which was a year when plants grew rapidly so foliage was thick, to allow fungicide to reach the soil. Future work should probably look at night time or early morning applications when foliage is positioned better to allow fungicide to reach the ground, and in increased water volume and pressure.

TITLE:

Weed Control Systems in Peanut with Warrant at Halfway, TX, 2012.

AUTHORS:

Peter Dotray, Shay Morris, Professor, Technician II
Texas *Agri*Life Research and Extension Service, Lubbock

MATERIALS AND METHODS:

Plot Size:	4 rows by 30 feet, 3 replications
Soil Type:	Pullman clay loam
Planting Date:	May 1
Variety:	Olin (Spanish Market Type)
Application Dates:	Preemergence, May 2; Postemergence, June 21
Rainfall (Apr to Sep.):	6.16 inches
Digging Date:	October 12
Harvest Date:	October 29

RESULTS AND DISCUSSION:

Prowl H2O (pendimethalin), Valor SX (flumioxazin) and Dual Magnum (*S*-metolachlor) are currently registered for use preemergence (PRE) in peanut. Warrant (acetochlor) is a relatively new encapsulated herbicide labeled for use in soybean and cotton, but is not currently labeled for use in peanut. It is well-documented that the first 4 to 6 weeks after peanut emergence are most important for effective weed control. The objective of this research was to examine peanut response and Palmer amaranth control using these PRE herbicides alone or in a "systems approach" for season-long weed control. Prowl H2O at 32 ounces per acre (oz/A), Valor SX at 3 oz/A, Dual Magnum at 21.3 oz/A, and Warrant at 48 oz/A were applied PRE alone or in a tank-mix combination. In a separate series of treatments, Prowl H2O PRE was followed by (fb) postemergence (POST) applications of Cadre (imazapic) at 4 oz/A (plus crop oil concentrate (COC)), Cobra (lactofen) at 12.5 oz/A (plus COC), Cobra plus Dual Magnum, or Cobra plus Warrant. Olin, a Spanish market type, was planted May 1. Preemergence applications were made on May 2 followed by overhead irrigation to activate preemergence herbicides. Postemergence applications were made on June 21.

On May 28 (4 weeks after planting), Palmer amaranth was controlled 95 to 100% following PRE treatments (Table 1a). Prowl H2O was the only herbicide that when applied alone did not provide complete control of this weed (95%). This was also observed in 2011. On Jun 28 (8 weeks after the PRE treatments and 1 week after the POST treatments), all PRE treatments controlled Palmer amaranth at least 99% except for Prowl H2O, which controlled this weed 70%. Prowl H2O PRE followed by (fb) Cadre POST controlled Palmer amaranth 98%, where Prowl H2O PRE fb Cobra, Prowl H2O + Dual Magnum PRE fb Cobra POST, and Prowl H2O + Warrant PRE fb Cobra POST controlled Palmer amaranth 74 to 76%. Last-season weed control (Aug 2) ranged from 55 to 97%. All PRE treatments except Prowl H2O controlled Palmer amaranth at least 88%. Palmer amaranth control following Prowl H2O and Dual Magnum was 55% and 97%, respectively. Prowl H2O PRE fb Cadre POST controlled this weed 95%. No other PRE fb POST combination controlled Palmer amaranth greater than 80%.

No peanut injury was observed on May 23 (3 weeks after planting) or May 29 (Table 1b). On Jun 13, only Dual Magnum, alone or in combination with Prowl H2O caused slight peanut injury. This

injury, however, did not exceed 3%. Cobra applied POST caused 6% peanut injury on June 28. This injury increased to 14% when Cobra was applied in tank mixture with Dual Magnum. Peanut yield ranged from 2091 to 2597 lb/A, which was not different from the non-treated control (1911 lb/A). Peanut grade ranged from 60 to 66%, which also was not different from the non-treated control (64%). Results from this study suggest that effective PRE and PRE fb POST herbicide combinations are available for use in peanut for effective Palmer amaranth control without any adverse effects on peanut yield or grade. The potential use of Warrant in the future will provide another effective and safe herbicide option in peanut.

Table 1a. Palmer amaranth control as affected by herbicide applications at Halfway, TX, 2012[a].

Treatment	Rate	Prod.	Timing	Palmer amaranth control		
				May 29	Jun 28	Aug 2
	lb ai/A	oz/A		----------%----------		
Non-treated	---	---	---	0	0	0
Prowl H2O	0.95	32	PRE	95	70	55
Valor SX	0.096	3	PRE	100	100	90
Dual Magnum	1.27	21.3	PRE	100	100	97
Warrant	1.13	48	PRE	100	100	88
Prowl H2O +	0.95	32	PRE	100	100	91
Valor SX	0.096	3				
Prowl H2O +	0.95	32	PRE	100	99	94
Dual Magnum	1.27	21.3				
Prowl H2O +	0.95	32	PRE	100	100	91
Warrant	1.13	48				
Prowl H2O fb	0.95	32	PRE	100	98	95
Cadre + COC	0.063 + 1%	4 + 12.8	POST			
Prowl H20 fb	0.95	32	PRE	100	76	76
Cobra + COC	0.195 + 1%	12.5 + 12.8	POST			
Prowl H2O fb	0.95	32	PRE	100	75	80
Dual Magnum +	1.27 +	21.3 +	POST			
Cobra + COC	0.195 + 1%	12.5 + 12.8				
Prowl H2O fb	0.95	32	PRE	100	74	76
Warrant + Cobra	1.13 + 0.195	48 + 12.5	POST			
+ COC	+ 1%	+ 12.8				
pValue				0.0001	0.0001	0.0001
$LSD_{(0.10)}$				21	5	9

[a]Abbreviations: COC, crop oil concentrate; fb, followed by; POST, postemergence; PRE, preemergence

Table 1b. Peanut injury, yield, and grade as affected by herbicide applications at Halfway, TX, 2012[a].

Treatment	Rate	Prod.	Timing	Peanut Injury				Yield	Grade
				May 23	May 29	Jun 13	Jun 28		
	lb ai/A	oz/A		----------%----------				lb/A	%
Non-treated	---	---	---	0	0	0	0	1911	64
Prowl H2O	0.95	32	PRE	0	0	0	0	2233	65
Valor SX	0.096	3	PRE	0	0	0	0	2227	63
Dual Magnum	1.27	21.3	PRE	0	0	2.5	0	2347	66
Warrant	1.13	48	PRE	0	0	0	0	2118	66
Prowl H2O +	0.95	32	PRE	0	0	0	1.3	2091	66
Valor SX	0.096	3							
Prowl H2O +	0.95	32	PRE	0	0	1.3	1.3	2156	66
Dual Magnum	1.27	21.3							
Prowl H2O +	0.95	32	PRE	0	0	0	0	2597	65
Warrant	1.13	48							
Prowl H2O fb	0.95	32	PRE	0	0	0	2.5	2477	64
Cadre + COC	0.063 + 1%	4 + 12.8	POST						
Prowl H20 fb	0.95	32	PRE	0	0	0	6.3	2347	64
Cobra + COC	0.195 + 1%	12.5 + 12.8	POST						
Prowl H2O fb	0.95	32	PRE	0	0	0	13.8	2221	64
Dual Magnum +	1.27 +	21.3 +	POST						
Cobra + COC	0.195 + 1%	12.5 + 12.8							
Prowl H2O fb	0.95	32	PRE	0	0	0	6.3	2521	60
Warrant + Cobra	1.13 + 0.195	48 + 12.5	POST						
+ COC	+ 1%	+ 12.8							
pValue				1.0000	1.0000	0.0497	0.0001	0.4531	0.3569
$LSD_{(0.10)}$				NS	NS	1.3	3.13	NS	NS

[a]Abbreviations: COC, crop oil concentrate; fb, followed by; POST, postemergence; PRE, preemergence

TITLE:

Broadleaf Weed Control in Peanut When Using Different Surfactants at Halfway, TX, 2012.

AUTHORS:

Peter Dotray, Shay Morris, James Grichar
Texas *Agri*Life Research and Extension Service, Lubbock

MATERIALS AND METHODS:

Plot Size:	4 rows by 30 feet, 3 replications
Soil Type:	Pullman Clay loam
Planting Date:	May 1
Variety:	Olin (Spanish market type)
Application Date:	Postemergence, June 2
Rainfall (Apr to Sep.):	6.16 inches

RESULTS AND DISCUSSION:

Producers are continually looking for ways to better manage production costs. Choosing the correct herbicide and herbicide rate for the target weed(s) and the timeliness of the application are all critical steps to obtain effective weed control while managing cost. In addition, knowing the importance of using an adjuvant, and which adjuvant to use could be the difference between success and failure, or simply good to excellent postemergence weed control. The objective of this research was to evaluate Palmer amaranth control and peanut injury following several postemergence (POST) broadleaf herbicides when applied at different use rates in tank mix combination with crop oil concentrate (COC), non-ionic surfactant (NIS), or no adjuvant. A Spanish market type (Olin) was planted May 1. Postemergence applications were made on Jun 2 to Palmer amaranth plants that were 10 inches in height. Percent peanut injury and Palmer amaranth control was estimated visually on July 5 (33 days after application). A herbicide by surfactant interaction was observed for both peanut injury and Palmer amaranth control; therefore all data are listed without pooling over herbicide or pooling over surfactant.

Peanut injury did not exceed 5% following applications of Pursuit, Cobra, or 2,4-DB regardless whether a surfactant was used (data not shown). The full rate of Cadre (4 oz/A) plus NIS (8% injury) or COC (10% injury) was more injurious than this rate of Cadre without a surfactant (5% injury). Ultra Blazer at 12.5 oz (full rate) injured peanut 5 to 6% regardless of whether a surfactant was used.

Cadre at 4 oz/A plus NIS or COC controlled Palmer amaranth 93%, which was more effective than when no surfactant was used (78%). Cadre at 2 oz/A controlled this weed 68 to 70% and no differences were observed among surfactants or when no surfactant was used. Pursuit at 4 oz/A plus COC controlled Palmer amaranth 82%. This control was more effective than this rate of Pursuit plus NIS (67%). Pursuit at 4 oz/A plus either type of surfactant was more effective at controlled Palmer amaranth when compared to this rate of Pursuit without a surfactant (47%). Pursuit at 2 oz/A plus COC was also more effective at controlling Palmer amaranth when compared to this same rate plus NIS or when no surfactant was used. Palmer amaranth control following Cobra at 12.5 oz/A ranged from 22 to 35 % and was similar regardless among surfactant options or when no surfactant was used. Palmer amaranth control following the reduced rate of Cobra was less than when the full rate was used, and no differences were observed among COC, NIS, and the no surfactant treatment. UltraBlazer at 24 oz/A plus COC or NIS was more effective at controlling

Palmer amaranth compared to UltraBlazer without surfactant, although control did not exceed 47% for any treatment. 2,4-DB plus COC controlled Palmer amaranth 87%, which was similar to this same rate plus NIS (83%) but greater than 2,4-DB used without surfactant (73%). Palmer amaranth control following the reduced rate of 2,4-DB (13 oz/A) was greater when COC of NIS was added when compared to no surfactant.

In summary, when using the full herbicide rate, the use of COC helped to improve weed control over the use of NIS when Pursuit was used. The use of COC was similar to NIS for Cadre, Cobra, UltraBlazer, and 2,4-DB. In all instances, the use of either surfactant improved weed control compared to when no surfactant was used. When the reduced herbicide rate was used, COC was superior to NIS when Pursuit was used, COC or NIS improved control when 2,4-DB was used, and no differences were observed for Cadre, Cobra, and UltraBlazer among the COC, NIS, and no surfactant treatments.

Table 1. Palmer amaranth control as affected by broadleaf herbicide applications when using different surfactants at Halfway, TX, 2012[a].

Treatment	Rate	Prod.	Timing	Palmer amaranth Control
				July 27
	lb ai/A	oz/A		%
Cadre	0.0313	2	POST	70
Cadre + NIS	0.0313 + 0.25% v/v	2 + 3.2	POST	70
Cadre + COC	0.0313 + 1% v/v	2 + 12.8	POST	67
Cadre	0.0625	4	POST	78
Cadre + NIS	0.0625+ 0.25% v/v	4 + 3.2	POST	93
Cadre + COC	0.0625 + 1%	4 + 12.8	POST	93
Pursuit	0.0313	2	POST	10
Pursuit + NIS	0.0313 + 0.25% v/v	2 + 3.2	POST	11
Pursuit + COC	0.0313 + 1% v/v	2 + 12.8	POST	27
Pursuit	0.0625	4	POST	47
Pursuit + NIS	0.0625 + 0.25% v/v	4 + 3.2	POST	67
Pursuit + COC	0.0625 + 1% v/v	4 + 12.8	POST	82
Cobra	0.098	6.25	POST	15
Cobra + NIS	0.098 + 0.25% v/v	6.25 + 3.2	POST	20
Cobra + COC	0.098 + 1% v/v	6.25 + 12.8	POST	22
Cobra	0.195	12.5	POST	22
Cobra+ NIS	0.195 + 0.25% v/v	12.5 + 3.2	POST	37
Cobra + COC	0.195 + 1% v/v	12.5 + 12.8	POST	35
UltraBlazer	0.188	12	POST	22
UltraBlazer + NIS	0.188 + 0.25% v/v	12 + 3.2	POST	25
UltraBlazer + COC	0.188 + 1% v/v	12 + 12.8	POST	30
UltraBlazer	0.375	24	POST	32
UltraBlazer + NIS	0.375 + 0.25% v/v	24 + 3.2	POST	47
UltraBlazer + COC	0.375 + 1% v/v	24 + 12.8	POST	47
2,4-DB	0.203	13	POST	37
2,4-DB + NIS	0.203 + 0.25% v/v	13 + 3.2	POST	60
2,4-DB + COC	0.203 + 1% v/v	13 + 12.8	POST	63
2,4-DB	0.406	26	POST	73
2,4-DB + NIS	0.406 + 0.25% v/v	26 + 3.2	POST	83
2,4-DB + COC	0.406 + 1% v/v	26 + 12.8	POST	87
$LSD_{(0.05)}$				9

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

Replicated LESA Supplemental (Limited) Irrigation Cotton Variety Research Trial - 2012

Cooperator: Cheuvront Farms

Manda Anderson, Extension Agent - IPM
Dr. Mark Kelley, Extension Agronomist – Cotton

Gaines County

Summary Significant differences were observed for all yield, economic, and some HVI fiber quality parameters measured. Lint turnout ranged from a low of 30.9% and a high of 36.2% for All-Tex Nitro-44 B2RF and Phytogen 499WRF, respectively. Lint yield varied with a low of 258 lb/acre (FiberMax 2989GLB2) and a high of 326 lb/acre (PhytoGen 499WRF). Lint loan values ranged from a low of $0.4738/lb (FiberMax 2989GLB2) to a high of $0.5355/lb (All-Tex Nitro-44 B2RF). Net value/acre among varieties ranged from a high of $134.62 (PhytoGen 499WRF) to a low of $81.71 (FiberMax 2989GLB2), a difference of $52.91. Micronaire values ranged from a low of 4.2 for All-Tex Nitro-44 B2RF to a high of 4.9 for FiberMax 2989GLB2. Staple averaged 32.4 across all varieties with a low of 30.6 for FiberMax 2989GLB2 and a high of 33.7 for All-Tex Nitro-44 B2RF. Strength values averaged 27.7 g/tex with a high of 30.5 g/tex for All-Tex Nitro-44 B2RF and a low of 24.1 g/tex for FiberMax 2989GLB2. These data indicate that differences can be obtained in terms of net value/acre due to variety and technology selection.

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

Materials and Methods

Varieties: All-Tex Nitro-44 B2RF, Deltapine 1044B2RF, FiberMax 2484B2F, FiberMax 2989GLB2, NexGen 1511B2RF, PhytoGen 499WRF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 3 seeds/row-ft in 36-inch row spacing

Plot size: 6 rows by variable length of field (712ft to 1744ft long)

Planting date: 17-May

Soil Texture: Sandy

Irrigation: This location was under a LESA center pivot. This trial received approximately 9.1 inches of irrigation and rainfall throughout the growing season.

Harvest: Plots were harvested on 22-October using a commercial stripper harvester. Harvest 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 AgriLife Research and Extension Center at Lubbock to determine gin turnouts.

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

Ginning cost and seed values: Ginning costs were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3 seed/row-ft) for the 36 row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls

Results and Discussion

Significant differences were observed for all yield, economic, and some HVI fiber quality parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 30.9% and a high of 36.2% for All-Tex Nitro-44 B2RF and Phytogen 499WRF, respectively. Seed turnout ranged from a high of 49.6% for FiberMax 2989GLB2 to a low of 46.5% for Deltapine 1044B2RF. Bur cotton yields averaged 863 lb/acre with a high of 911 lb/acre for All-Tex Nitro-44 B2RF, and a low of 754 lb/acre for FiberMax 2989GLB2. Lint yield varied with a low of 258 lb/acre (FiberMax 2989GLB2) and a high of 326 lb/acre (PhytoGen 499WRF). Seed yield ranged from a high of 425 lb/acre for All-Tex Nitro-44 B2RF to a low of 373 lb/acre for FiberMax 2989GLB2. Lint loan values ranged from a low of $0.4738/lb (FiberMax 2989GLB2) to a high of $0.5355/lb (All-Tex Nitro-44 B2RF). After adding lint and seed value, total value/acre for varieties ranged from a low of $169.01 for FiberMax 2989GLB2 to a high of $225.42 for PhytoGen 499WRF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $134.62 (PhytoGen 499WRF) to a low of $81.71 (FiberMax 2989GLB2), a difference of $52.91.

Micronaire values ranged from a low of 4.2 for All-Tex Nitro-44 B2RF to a high of 4.9 for FiberMax 2989GLB2. Staple averaged 32.4 across all varieties with a

low of 30.6 for FiberMax 2989GLB2 and a high of 33.7 for All-Tex Nitro-44 B2RF. Strength values averaged 27.7 g/tex with a high of 30.5 g/tex for All-Tex Nitro-44 B2RF and a low of 24.1 g/tex for FiberMax 2989GLB2. Elongation ranged from a high of 8.2% for NexGen 1511B2RF to a low of 5.6% for FiberMax 2484B2RF. Values for reflectance (Rd) and yellowness (+b) averaged 78.2 and 9.1, respectively.

Conclusions

These data indicate that differences can be obtained in terms of net value/acre due to variety and technology selection. During the 2012 growing season Gaines County experienced high temperatures and very little rainfall. The environmental conditions prior to and during the growing season were a limiting factor in the varieties performance overall. It should be noted that no inclement weather was encountered at this location prior to harvest and therefore, no pre-harvest losses were observed. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

Acknowledgements

Appreciation is expressed to Cheuvront Farms for the use of his land, equipment and labor for this demonstration.

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

Table 1. Harvest results from the Supplemental (Limited) Irrigation Trial, Cheuvront Farms Farm, Seminole, TX, 2012.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value
	-------- % --------		---------- lb/acre ----------			$/lb	---------- $/acre ----------					
PhytoGen 499WRF	36.2	46.6	900	326	420	0.5302	172.92	52.51	225.42	27.01	63.79	134.62 a
NexGen 1511B2RF	36.2	46.9	891	322	418	0.4897	157.79	52.29	210.08	26.73	58.29	125.05 ab
All-Tex Nitro-44 B2RF	30.9	46.7	911	281	425	0.5355	150.63	53.17	203.80	27.32	60.17	116.31 bc
Deltapine 1044B2RF	32.4	46.5	892	289	415	0.5027	145.19	51.85	197.04	26.75	59.65	110.64 bc
FiberMax 2484B2F	34.4	47.2	829	285	391	0.5155	146.89	48.86	195.75	24.86	63.34	107.55 c
FiberMax 2989GLB2	34.2	49.6	754	258	373	0.4738	122.32	46.69	169.01	22.61	64.69	81.71 d
Test average	34.0	47.3	863	294	407	0.5079	149.29	50.89	200.18	25.88	61.66	112.65
CV, %	3.9	2.5	4.6	4.5	4.5	5.1	4.6	4.5	4.6	4.6	--	7.1
OSL	0.0034	0.0794†	0.0044	0.0006	0.0366	0.098†	0.0001	0.0372	0.0005	0.0043	--	0.0002
LSD	2.4	1.7	72	24	33	0.0383	12.46	4.18	16.63	2.15	--	14.50

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates signficance at the 0.10 level.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 2. HVI fiber property results from the Supplemental (Limited) Irrigation Trial, Cheuvront Farms Farm, Seminole, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Nitro-44 B2RF	4.2	33.7	79.7	30.5	7.1	2.7	78.3	9.0	2.0	1.0
NexGen 1511B2RF	4.6	30.8	78.3	26.6	8.2	2.0	76.9	9.5	2.3	1.3
Deltapine 1044B2RF	4.8	32.6	78.2	28.0	8.0	1.7	78.1	9.3	2.0	1.0
FiberMax 2484B2F	4.5	33.3	78.3	27.6	5.6	2.0	80.2	8.6	2.0	1.0
FiberMax 2989GLB2	4.9	30.6	77.2	24.1	5.6	1.7	78.3	9.0	2.0	1.0
PhytoGen 499WRF	4.5	33.5	79.3	29.6	7.8	1.3	77.0	9.5	2.0	1.3
Test average	4.6	32.4	78.5	27.7	7.1	1.9	78.2	9.1	2.1	1.1
CV, %	3.7	4.4	2.2	5.9	4.7	47.0	0.4	3.1	--	--
OSL	0.0047	0.08†	0.5755	0.0087	<0.0001	0.5809	<0.0001	0.0200	--	--
LSD	0.3	2.1	NS	3.0	0.6	NS	0.6	0.5	--	--

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

Replicated LESA Irrigated RACE Variety Demonstration, Brownfield, TX - 2012

Cooperator: Keith Harrison

Mark Kelley, Chris Ashbrook, Chris Bishop, and Scott Russell
Extension Agronomist – Cotton, Extension Assistant – Cotton, CEA-ANR Terry County, and EA-IPM Terry/Yoakum Counties

Terry County

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

Materials and Methods:

Varieties:	All-Tex Nitro-44 B2RF, Deltapine 1044B2RF, Dyna-Gro 2570B2RF, FiberMax 9170B2F, FiberMax 9170B2F Base, NexGen 1511B2RF, NexGen 4012B2RF, PhytoGen 499WRF, and Stoneville 5458B2RF
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	3.0 seed/row-ft in 40 inch row spacings. (John Deere 1700 Vacuum planter)
Plot size:	4 rows by variable length (~2660 feet)
Planting date:	24-May
Weed management:	Trifluralin was applied preplant incorporated at 1.25 pt/acre across all varieties. Roundup PowerMax was applied over-the-top at 32 oz/acre with AMS on 15-June and 25-July.
Irrigation:	3.0” of irrigation were applied via LESA irrigation preplant with 10.5” of LESA irrigation during the growing season for a total of 13.5” applied irrigation.

Rainfall: Based on the nearest Texas Tech University- West Texas Mesonet station at Brownfield, rainfall amounts were:

April:	0.65”	August:	1.06”
May:	1.97”	September:	1.58”
June:	1.70”	October:	0.06”
July:	1.59”		

Total rainfall: 8.61”

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

Fertilizer management: Soil test results prior to planting accounted for 43 lbs N available in the soil. The producer applied a total of 50 more lbs N for a total of 93 lbs N/acre.

Plant growth regulators: None were applied at this location.

Harvest aids: Harvest aids included an initial application of ethephon at 1 pt/acre with 2 oz/acre ET on 5-October. No additional harvest aids were required due to an early freeze event on 8-October.

Harvest: Plots were harvested on 29-October using a commercial John Deere 7450 with field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.

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

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

Ginning cost and seed values: Ginning cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.

Seed and Technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3.0 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls .

Results and Discussion:

Agronomic data including plant population, boll storm resistance, and final plant map data are included in Tables 1-3.

Significant differences were noted for most yield and economic parameters (Table 4). Lint turnout averaged 32.0% with a high of 36.5% for NexGen 1511B2RF and a low of 29.9% for All-Tex Nitro-44 B2RF and NexGen 4012B2RF. Bur cotton yield averaged 2437 lb/acre and ranged from a high of 2822 lb/acre for Stoneville 5458B2RF to a low of 2171 lb/acre for NexGen 4012B2RF. Lint yields varied from a low of 650 lb/acre (NexGen 4012B2RF) to a high of 925 lb/acre (NexGen 1511B2RF). Lint loan values averaged $.5516/lb across varieties but differences were not significant. When adding lint and seed value, total values ranged from a high of $690.48/acre for NexGen 1511B2RF to a low of $496.57/acre for NexGen 4012B2RF. After subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $560.92/acre (NexGen 1511B2RF) to a low of $379.49/acre (NexGen 4012B2RF), a difference of $181.43.

Significant differences were observed among varieties for all fiber quality parameters at this location (Table 5). Micronaire values ranged from a low of 3.0 for All-Tex Nitro-44 B2RF to a high of 3.8 for NexGen 1511B2RF and differences were significant at the 0.10 level. Staple averaged 37.2 across all varieties with a high of 39.5 for All-Tex Nitro-44 B2RF and a low of 35.6 for NexGen 1511B2RF. Uniformity ranged from a high of 83.7% for All-Tex Nitro-44 B2RF to a low of 80.2% for Stoneville 5484B2RF with a test average of 82.0%. Strength ranged from a low of 31.4 g/tex for Stoneville 5458B2RF to a high of 35.5 g/tex for All-Tex Nitro-44 B2RF. Elongation averaged 10.0% across varieties and leaf grades were mostly 1 and 2. Color grade components of Rd (reflectance) and +b (yellowness) averaged 80.1 and 8.0, respectively and resulted in color grades of mostly 21 and 31.

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

Acknowledgments:

Appreciation is expressed to Keith Harrison for the use of his land, equipment and labor for this demonstration. Further assistance with this project was provided by Dr. Jane Dever - Texas A&M AgriLife Research and Extension Center, Lubbock, and Dr. Eric Hequet - Associate Director, Fiber and Biopolymer Research Institute, Texas Tech University. Furthermore, we greatly appreciate the Texas Department of Agriculture - Food and Fiber Research for funding of HVI testing.

Disclaimer Clause:

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Table 1. Inseason plant measurement results from the Terry County irrigated RACE variety demonstration, Keith Harrison Farm, Brownfield, TX, 2012.

Entry	Plant population		Storm resistance
	plants/row ft	plants/acre	rating (0-9)
NexGen 1511B2RF	2.9	37,752	5.7
All-Tex Nitro-44 B2RF	3.4	44,649	7.7
Dyna-Gro 2570B2RF	2.8	36,300	7.0
Deltapine 1044B2RF	3.1	40,293	5.7
FiberMax 9170B2F	3.1	39,930	7.3
FiberMax 9170B2F Base	2.9	38,478	7.3
NexGen 4012B2RF	2.8	35,937	7.0
PhytoGen 499WRF	3.2	41,382	5.7
Stoneville 5458B2RF	3.2	42,108	6.7
Test average	3.0	39,648	6.7
CV, %	9.7	9.9	6.6
OSL	0.2032	0.2121	<0.0001
LSD	NS	NS	0.8

For Storm resistance, ratings based on a scale of 0-9 where 9 represents maximum storm resistance.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, NS - not significant.

Table 2. Final plant map results from the Terry County irrigated RACE variety demonstration, Keith Harrison Farm, Brownfield, TX, 2012.

Entry	Final plant map 20-Sept					
	plant height (inches)	node of first fruiting branch	total mainstem nodes	height to node ratio	total fruiting branches	open boll (%)
NexGen 1511B2RF	22.9	6.0	16.3	1.4	11.3	57.0
All-Tex Nitro-44 B2RF	18.9	7.6	16.3	1.2	9.6	49.4
Dyna-Gro 2570B2RF	20.8	8.0	16.2	1.3	9.3	31.3
Deltapine 1044B2RF	19.4	6.5	15.9	1.2	10.3	39.0
FiberMax 9170B2F	17.3	7.5	15.4	1.1	8.9	35.5
FiberMax 9170B2F GS	17.9	8.0	16.5	1.1	9.5	47.3
NexGen 4012B2RF	20.7	7.9	17.7	1.2	10.7	40.0
PhytoGen 499WRF	23.0	8.0	16.3	1.4	9.4	23.8
Stoneville 5458B2RF	18.8	7.2	15.5	1.2	9.3	44.3
Test average	20.0	7.4	16.2	1.2	9.8	40.8
CV, %	7.5	5.1	5.9	4.7	7.8	34.2
OSL	0.0018	<0.0001	0.2518	<0.0001	0.0242	0.2212
LSD	2.6	0.6	NS	0.1	1.3	NS

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
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. Final plant map results from the Terry County irrigated RACE variety demonstration, Keith Harrison Farm, Brownfield, TX, 2012.

Entry	Fruiting and Retention 20-Sept					
	% of fruit from 1st position	% of fruit from 2nd position	total fruit	1st position retention (%)	2nd position retention (%)	total retention (%)
NexGen 1511B2RF	67.5	32.5	8.9	52.7	36.8	46.10
All-Tex Nitro-44 B2RF	78.8	21.2	6.0	46.1	21.3	35.80
Dyna-Gro 2570B2RF	77.3	22.7	7.1	56.4	31.9	48.03
Deltapine 1044B2RF	70.3	29.7	9.5	62.4	37.7	51.87
FiberMax 9170B2F	82.0	18.0	5.6	50.1	19.0	37.53
FiberMax 9170B2F GS	81.7	18.3	5.9	48.9	18.1	36.33
NexGen 4012B2RF	72.3	27.7	5.9	39.6	21.3	31.87
PhytoGen 499WRF	67.9	32.1	9.4	64.0	49.7	58.23
Stoneville 5458B2RF	70.5	29.5	7.2	52.9	35.6	45.93
Test average	74.3	25.7	7.3	52.6	30.2	43.52
CV, %	10.8	31.3	21.8	15.5	37.4	18.2
OSL	0.2254	0.2262	0.0253	0.0447	0.0384	0.0138
LSD	NS	NS	2.7	14.1	19.5	13.7

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
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 4. Harvest results from the Terry County irrigated RACE variety demonstration, Keith Harrison Farm, Brownfield, TX, 2012.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	-------- % --------		---------- lb/acre ----------			$/lb	---------- $/acre ----------						
NexGen 1511B2RF	36.5	51.0	2534	925	1292	0.5718	529.03	161.45	690.48	76.03	53.53	560.92	a
PhytoGen 499WRF	33.0	50.8	2745	906	1395	0.5690	515.30	174.36	689.66	82.36	58.57	548.72	ab
Stoneville 5458B2RF	31.6	53.0	2822	893	1495	0.5457	487.18	186.94	674.12	84.67	58.16	531.28	b
Dyna-Gro 2570B2RF	32.9	54.4	2412	793	1313	0.5515	437.23	164.15	601.38	72.37	58.23	470.79	c
FiberMax 9170B2F Grower Seed	32.1	53.4	2258	725	1206	0.5547	402.08	150.72	552.79	67.75	58.16	426.88	d
FiberMax 9170B2F	31.9	54.0	2249	718	1214	0.5548	398.35	151.69	550.04	67.48	58.16	424.40	d
Deltapine 1044B2RF	30.5	51.7	2296	701	1188	0.5568	390.52	148.47	538.99	68.88	54.78	415.34	d
All-Tex Nitro-44 B2RF	29.9	53.4	2443	730	1305	0.5147	375.48	163.07	538.55	73.30	55.25	410.00	d
NexGen 4012B2RF	29.9	52.4	2171	650	1138	0.5453	354.33	142.25	496.57	65.12	51.97	379.49	e
Test average	32.0	52.7	2437	782	1283	0.5516	432.17	160.34	592.51	73.10	56.31	463.09	
CV, %	3.5	1.8	2.9	3.0	2.9	3.7	3.1	2.9	3.0	2.9	--	3.4	
OSL	<0.0001	0.0015	<0.0001	<0.0001	<0.0001	0.1230	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD	1.9	1.6	123	41	65	NS	22.87	8.11	30.92	3.70	--	27.23	

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

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 5. HVI fiber property results from the Terry County irrigated RACE variety demonstration, Keith Harrison Farm, Brownfield, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Nitro-44 B2RF	3.0	39.5	83.7	35.5	9.7	3.3	79.7	7.4	3.0	1.0
Dyna-Gro 2570B2RF	3.2	36.2	81.5	32.1	11.0	1.0	79.9	8.3	2.0	1.0
Deltapine 1044B2RF	3.4	36.8	81.4	31.8	11.0	1.3	80.4	8.1	2.3	1.0
FiberMax 9170B2F	3.3	38.1	82.2	33.1	8.8	1.3	81.9	7.5	2.3	1.0
FiberMax 9170B2F Grower Seed	3.2	38.8	82.2	33.9	9.0	1.0	82.2	7.4	2.3	1.0
NexGen 1511B2RF	3.8	35.6	82.5	32.2	11.5	1.3	79.3	8.2	2.7	1.0
NexGen 4012B2RF	3.2	37.4	81.8	32.7	8.6	2.0	79.9	8.2	2.3	1.0
PhytoGen 499WRF	3.6	36.4	82.7	33.4	10.9	1.7	78.9	8.2	2.7	1.0
Stoneville 5458B2RF	3.4	35.9	80.2	31.4	9.8	2.3	78.5	8.5	3.0	1.0
Test average	3.3	37.2	82.0	32.9	10.0	1.7	80.1	8.0	2.5	1.0
CV, %	7.9	1.6	0.9	2.8	2.5	32.9	1.2	3.8	--	--
OSL	0.0635†	<0.0001	0.0034	0.0020	<0.0001	0.0020	0.0020	0.0011	--	--
LSD	0.4	1.0	1.3	1.6	0.4	1.0	1.6	0.5	--	--

CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates signficance at the 0.10 level.

Replicated LEPA Irrigated RACE Variety Demonstration, Lamesa, TX - 2012

Cooperator: Lamesa Cotton Growers/Texas A&M AgriLife Research/ Texas A&M AgriLife Extension

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Dawson County

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

Materials and Methods:

Varieties:	All-Tex Nitro-44 B2RF, Deltapine 0912B2RF, Dyna-Gro 2570B2RF, FiberMax 2484B2F, NexGen 1511B2RF, NexGen 4012B2RF, PhytoGen 499WRF, and Stoneville 5458B2RF
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	4.0 seed/row-ft in 40 inch row spacings. (John Deere MaxEmerge XP Vacuum planter)
Plot size:	4 rows by variable length (253-872 ft)
Planting date:	22-May
Weed management:	Prowl H2O was applied preplant incorporated at 3 pt/acre across all varieties. Roundup PowerMax was applied over-the-top before planting at 32 oz/acre on 13-April, and at 28 oz/acre on 11-May. In-season Roundup PowerMax applications were on 20-June at 32oz plus Warrant at 3 pints/acre, 28 oz/acre on 13-July, and 32 oz on 28-August.
Irrigation:	3.75" inches of irrigation were applied preplant, with 8.4” applied during the growing season for a total of 12.15” of irrigation applied.

Rainfall: Based on the nearest Texas Tech University – West Texas Mesonet station at Lamesa, rainfall amounts were:

April:	0.58"	August:	1.55"
May:	3.04"	September:	4.21"
June:	0.11"	October:	0.25”
July:	0.51"		

Total rainfall: 10.25"

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

Fertilizer management: Soil test results prior to planting accounted for 107 lbs N available in the soil. An additional 52 lbs N was applied during the growing season for a total of 159 lbs N/acre.

Plant growth regulators: None were applied at this location.

Harvest aids: Harvest aids included 3 pt/acre Prep + 2.0 oz/acre ET with 1% v/v crop oil on 3-October followed by 1 qt/acre Gramoxone Inteon with 0.25% v/v NIS on 17-October.

Harvest: Plots were harvested on 23-November using a commercial John Deere 9996 basket picker. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.

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

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

Ginning cost and seed values: Ginning cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.

Seed and Technology fees: Seed and technology costs were calculated using the appropriate seeding rate (4.0 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls .

Results and Discussion:

Agronomic data including plant population, nodes above white flower (NAWF) and final plant map data are included in Tables 1-3.

Significant differences were noted for some yield and economic parameters (Table 4). Picker harvested lint turnout ranged from a low of 34.6% for All-Tex Nitro-44 B2RF to a high of 38.7% for PhytoGen 499WRF. Seed turnouts averaged 52.9 with a high of 54.7 for Stoneville 5458B2RF and low of 50.1 for NexGen 1511B2RF. There were no significant differences in bur cotton yield and the test average was 1876 lb/acre. Lint yields were significant (alpha 0.10) and ranged from a low of 533 lb/acre (NexGen 4012B2RF) to a high of 782 lb/acre (Stoneville 5458B2RF and NexGen 1511B2RF). Lint loan values ranged from a low of $0.4837/lb to a high of $0.5747/lb for Deltapine 0912B2RF and FiberMax 2484B2F, respectively. Lint value was not significant with a test average of $367.83/acre. When subtracting ginning and seed and technology costs, the net value/acre averaged $361.08, and no significant differences were observed among varieties.

Significant differences were observed for most fiber quality parameters at this location (Table 5). Micronaire values ranged from a low of 4.2 for All-Tex Nitro-44B2RF to a high of 5.2 for Deltapine 0912B2RF. Staple averaged 35.0 across all varieties with a low of 32.9 (Deltapine 0912B2RF) and a high of 37.5 (All-Tex Nitro-44 B2RF). Uniformity was not significant and averaged 81.8%. Strength ranged from a low of 29.3 g/tex for Deltapine 0912B2RF to a high of 35.4 g/tex for All-Tex Nitro-44 B2RF. Significant differences were observed among varieties for percent elongation (10.3% avg), Rd or reflectance (75.9 avg), and +b or yellowness (9.1 avg). Leaf grades were mostly 1 and 2, and color grades were mostly 31.

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

Acknowledgments:

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

Disclaimer Clause:

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Table 1. Inseason plant measurement results from the picker harvested Dawson County irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2012.

Entry	Plant population		Nodes Above White Flower (NAWF) for week of			
	plants/row ft	plants/acre	19-Jul	27-Jul	3-Aug	10-Aug
NexGen 1511B2RF	3.9	50,457	7.9	6.6	5.3	3.7
All-Tex Nitro-44 B2RF	4.0	52,272	7.1	6.4	4.9	2.6
Dyna-Gro 2570B2RF	3.8	49,005	8.1	7.1	5.1	3.1
Deltapine 0912B2RF	3.7	48,642	7.7	6.7	4.7	3.1
FiberMax 2484B2F	3.9	50,457	7.9	6.7	4.3	2.8
NexGen 4012B2RF	3.7	47,916	7.9	6.6	4.9	2.7
PhytoGen 499WRF	4.0	52,635	7.6	6.9	4.9	3.3
Stoneville 5458B2RF	3.7	47,916	7.2	7.0	4.9	2.9
Test average	3.8	49,913	7.7	6.8	4.9	3.0
CV, %	5.3	5.2	7.7	6.4	11.2	18.9
OSL	0.2892	0.2344	0.4929	0.5028	0.4692	0.4112
LSD	NS	NS	NS	NS	NS	NS

For NAWF, numbers represent an average of 5 plants per variety per rep (15 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, NS - not significant

Table 2. Final plant map results from the picker harvested Dawson County irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2012.

Entry	Final plant map 11-Oct					
	plant height (inches)	node of first fruiting branch	total mainstem nodes	height to node ratio	total fruiting branches	open boll (%)
All-Tex Nitro-44 B2RF	19.9	7.0	15.9	1.3	9.9	96.6
Dyna-Gro 2570B2RF	23.7	7.4	16.3	1.5	9.9	95.4
Deltapine 0912B2RF	20.6	6.6	15.7	1.3	10.1	83.2
FiberMax 2484B2F	21.6	8.4	16.9	1.3	9.6	85.4
NexGen 1511B2RF	24.1	5.8	15.7	1.5	10.8	93.6
NexGen 4012B2RF	23.2	8.1	18.5	1.3	11.4	90.4
PhytoGen 499WRF	22.2	7.3	15.8	1.4	9.5	92.0
Stoneville 5458B2RF	20.2	7.2	15.5	1.3	9.3	89.7
Test average	21.9	7.2	16.3	1.3	10.1	90.8
CV, %	12.4	5.7	4.1	9.4	6.7	6.2
OSL	0.4222	<0.0001	0.0013	0.1265	0.0283	0.1163
LSD	NS	0.7	1.2	NS	1.2	NS

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
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. Final plant map results from the picker harvseted Dawson County irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2012.

Entry	Fruiting and Retention 11-Oct					
	% of fruit from 1st position	% of fruit from 2nd position	total fruit	1st position retention (%)	2nd position retention (%)	total retention (%)
All-Tex Nitro-44 B2RF	66.0	34.0	5.2	34.5	26.0	32.04
Dyna-Gro 2570B2RF	78.5	21.5	6.9	52.8	22.9	41.05
Deltapine 0912B2RF	69.9	30.1	8.1	54.7	33.5	45.67
FiberMax 2484B2F	79.7	20.3	6.7	54.9	24.0	42.70
NexGen 1511B2RF	75.2	24.8	7.9	51.8	25.7	40.49
NexGen 4012B2RF	80.1	19.9	6.2	41.8	21.6	33.73
PhytoGen 499WRF	77.1	22.9	6.8	52.5	24.3	42.05
Stoneville 5458B2RF	71.2	28.8	6.6	49.2	28.8	40.96
Test average	74.7	25.3	6.8	49.0	25.8	39.84
CV, %	15.0	44.3	23.4	15.9	50.6	18.4
OSL	0.7215	0.7215	0.4774	0.0628†	0.9640	0.3685
LSD	NS	NS	NS	11.2	NS	NS

For Final plant map, numbers represent and average of 6 plants per variety per rep (18 plants per variety)
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant

Table 4. Harvest results from the picker harvested Dawson County irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2012.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value
	-------- % --------		---------- lb/acre ----------			$/lb	---------- $/acre ----------					
Stoneville 5458B2RF	37.5	54.7	2086	782	1140	0.5340	417.34	142.51	559.85	62.58	76.63	420.64
NexGen 1511B2RF	38.2	50.1	2049	782	1026	0.5158	403.51	128.19	531.71	61.47	70.53	399.71
PhytoGen 499WRF	38.7	53.4	1871	725	999	0.5477	396.80	124.89	521.69	56.14	77.17	388.38
FiberMax 2484B2F	36.1	53.6	1871	675	1002	0.5747	387.63	125.22	512.84	56.12	76.63	380.10
Dyna-Gro 2570B2RF	37.0	53.6	1920	710	1030	0.5157	366.13	128.71	494.84	57.59	76.71	360.54
Deltapine 0912B2RF	36.5	53.0	2019	737	1071	0.4837	356.29	133.85	490.14	60.58	77.44	352.12
All-Tex Nitro-44 B2RF	34.6	52.4	1684	582	882	0.5675	330.38	110.30	440.68	50.53	72.80	317.36
NexGen 4012B2RF	35.4	52.6	1505	533	791	0.5337	284.54	98.89	383.43	45.14	68.46	269.82
Test average	36.7	52.9	1876	691	993	0.5341	367.83	124.07	491.90	56.27	74.55	361.08
CV, %	2.4	2.2	14.5	14.6	14.1	4.0	14.5	14.1	14.4	14.5	--	17.3
OSL	0.0006	0.0129	0.2230	0.0750†	0.1631	0.0024	0.1223	0.1632	0.1492	0.2227	--	0.1648
LSD	1.5	2.0	NS	145	NS	0.0370	NS	NS	NS	NS	--	NS

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 5. HVI fiber property results from the picker harvested Dawson County irrigated RACE variety demonstration, AG-CARES Farm, Lamesa, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Nitro-44 B2RF	4.2	37.5	82.7	35.4	10.3	2.7	76.4	8.7	2.7	1.0
Dyna-Gro 2570B2RF	5.0	34.1	81.2	31.3	10.9	1.0	75.8	9.5	2.7	1.7
Deltapine 0912B2RF	5.2	32.9	81.8	29.3	10.5	1.3	74.2	9.0	3.3	1.3
FiberMax 2484B2F	4.4	36.8	82.0	32.1	9.1	1.3	78.6	8.2	2.7	1.0
NexGen 1511B2RF	4.9	34.0	80.7	29.9	11.4	1.7	75.1	9.2	3.0	1.3
NexGen 4012B2RF	4.8	35.4	81.5	31.9	8.7	1.3	75.6	9.4	3.0	1.7
PhytoGen 499WRF	4.8	34.3	82.3	32.8	11.5	2.0	75.4	9.0	3.0	1.0
Stoneville 5458B2RF	5.0	34.8	82.0	31.2	10.0	2.3	75.7	9.4	3.0	1.3
Test average	4.8	35.0	81.8	31.7	10.3	1.7	75.9	9.1	2.9	1.3
CV, %	3.7	1.9	1.2	2.5	3.5	48.6	1.5	4.1	--	--
OSL	0.0002	<0.0001	0.2910	<0.0001	<0.0001	0.2656	0.0153	0.0092	--	--
LSD	0.3	1.2	NS	1.4	0.6	NS	1.9	0.6	--	--

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

Replicated Dryland Cotton Variety Research Trial - 2012

Cooperator: Cody Walters

Manda Anderson, Extension Agent - IPM
Dr. Mark Kelley, Extension Agronomist – Cotton

Gaines County

Summary Significant differences were noted for lint turnout and net value. Lint turnout averaged 22.2% with a high of 23.8% and low of 20.4% for Deltapine 1044B2RF and Stoneville 5458B2RF, respectively. After subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $94.44/acre (Deltapine 1044B2RF) to a low of $63.50/acre (Phytogen 375WRF), a difference of $30.94.

Significant differences were observed among varieties for micronaire, elongation, leaf, and reflectance. Micronaire values ranged from a low of 3.0 for Stoneville 5458B2RF to a high of 3.9 for All-Tex Epic RF. Elongation averaged 7.0% across varieties with a high of 7.8% for Phytogen 499WRF and a low of 6.3% for Stoneville 5458B2RF. Color grade components of Rd (reflectance) and +b (yellowness) averaged 80.4 and 8.5, respectively.

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

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

Materials and Methods

Varieties:	All-Tex Edge B2RF, All-Tex Epic RF, Deltapine 1044B2RF, Deltapine 1219B2RF, FiberMax 2989GLB2, PhytoGen 375WRF, PhytoGen 499WRF, and Stoneville 5458B2RF
Experimental design:	Randomized complete block with three (3) replications.
Seeding rate:	2.5 seed/row-ft in 40 inch row spacings.
Plot size:	6 rows by variable length (1456 to 1713 feet)
Planting date:	28-May
Irrigation:	2.5” of irrigation were applied via LESA irrigation preplant with 14.5” of LEPA irrigation during the growing season for a total of 17” applied irrigation.
Rainfall:	7.73 inches of rainfall from 5-June to 1-October

Harvest: Plots were harvested on 14-November using a commercial stripper harvester without a field cleaner. Harvested material was transferred to a weigh wagon with integral electronic scales to record individual plot weights. Plot weights were subsequently converted to lb/acre basis.

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

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

Ginning cost and seed values: Ginning cost were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning cost did not include check-off.

Seed and Technology fees: Seed and technology costs were calculated using the appropriate seeding rate (2.5 seed/row-ft) for the 40-inch row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls .

Results and Discussion

Significant differences were noted for lint turnout and net value (Table 1). Lint turnout averaged 22.2% with a high of 23.8% and low of 20.4% for Deltapine 1044B2RF and Stoneville 5458B2RF, respectively. After subtracting ginning, seed costs and technology fees, the net value/acre among varieties ranged from a high of $94.44/acre (Deltapine 1044B2RF) to a low of $63.50/acre (Phytogen 375WRF), a difference of $30.94.

Significant differences were observed among varieties for micronaire, elongation, leaf, and reflectance (Table 2). Micronaire values ranged from a low of 3.0 for Stoneville 5458B2RF to a high of 3.9 for All-Tex Epic RF. Elongation averaged 7.0% across varieties with a high of 7.8% for Phytogen 499WRF and a low of 6.3% for Stoneville 5458B2RF. Color grade components of Rd (reflectance) and +b (yellowness) averaged 80.4 and 8.5, respectively.

Conclusions

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

Acknowledgements

Appreciation is expressed to Cody Walters for the use of his land, equipment and labor for this demonstration.

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Table 1. Harvest results from the Dryland Production Trial, Cody Walters Farm, Loop, TX, 2012.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value
	-------- % --------		---------- lb/acre ----------			$/lb	---------- $/acre ----------					
Deltapine 1044B2RF	23.8	39.9	924	220	369	0.5495	120.78	46.12	166.90	27.73	44.74	94.44 a
All-Tex Epic RF	22.8	38.2	957	218	366	0.5248	114.30	45.69	159.99	28.70	37.21	94.07 a
All-Tex Edge B2RF	21.4	39.2	1011	217	396	0.5492	119.00	49.53	168.53	30.32	44.39	93.82 a
PhytoGen 499WRF	22.4	37.0	989	222	366	0.5482	121.75	45.74	167.49	29.68	47.84	89.96 ab
FiberMax 2989GLB2	21.6	37.5	945	204	354	0.5282	107.61	44.30	151.91	28.35	48.51	75.05 abc
Stoneville 5458B2RF	20.4	38.7	995	203	385	0.5027	102.12	48.12	150.24	29.85	47.51	72.88 bc
Deltapine 1219B2RF	23.1	38.6	845	195	326	0.5143	100.27	40.74	141.01	25.36	44.74	70.91 bc
PhytoGen 375WRF	22.0	36.5	834	184	304	0.5353	98.36	37.98	136.34	25.01	47.84	63.50 c
Test average	22.2	38.2	937	208	358	0.5315	110.52	44.78	155.30	28.12	45.35	81.83
CV, %	4.2	5.5	11.1	11.3	11.2	4.8	11.1	11.2	11.1	11.1	--	17.3
OSL	0.0134	0.5117	0.3471	0.4499	0.1852	0.2832	0.1536	0.1846	0.2266	0.3452	--	0.0807†
LSD	1.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	20.30

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 2. HVI fiber property results from the Dryland Production Trial, Cody Walters Farm, Loop, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Edge B2RF	3.7	35.7	79.0	29.4	6.3	3.0	82.0	7.6	2.3	1.0
All-Tex Epic RF	3.9	33.3	79.2	27.8	7.7	1.0	79.8	8.8	2.0	1.0
Deltapine 1044B2RF	3.8	34.8	80.2	28.4	7.8	1.3	81.8	8.1	2.0	1.0
Deltapine 1219B2RF	3.2	34.3	79.1	28.7	6.4	1.3	82.1	8.3	1.3	1.0
FiberMax 2989GLB2	3.4	35.3	79.1	29.8	6.6	1.7	78.9	8.4	2.3	1.3
PhytoGen 375WRF	3.2	35.5	80.5	28.1	6.7	1.3	81.0	8.8	1.3	1.0
PhytoGen 499WRF	3.5	34.7	80.9	29.4	7.8	1.7	80.4	8.4	2.0	1.0
Stoneville 5458B2RF	3.0	35.1	79.6	29.5	6.3	1.7	77.7	9.4	2.0	1.3
Test average	3.5	34.8	79.7	28.9	7.0	1.6	80.4	8.5	1.9	1.1
CV, %	9.0	3.0	1.6	4.4	8.6	39.4	1.7	9.3	--	--
OSL	0.0265	0.2022	0.5051	0.4579	0.0118	0.0571†	0.0149	0.2791	--	--
LSD	0.5	NS	NS	NS	1.0	0.9	2.5	NS	--	--

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

Replicated LESA Irrigation Cotton Variety Research Trial Under Light Root-Knot Nematode Pressure - 2012

Cooperator: Scott Nolen Farms

Manda Anderson, Extension Agent - IPM
Dr. Jason Woodward, Extension Plant Pathologist

Gaines County

Summary Significant differences were observed for all the yield, economic, and some HVI fiber quality parameters measured. Lint turnout ranged from a low of 29.29% and a high of 35.2% for All-Tex Nitro-44 B2RF and Deltapine 174RF, respectively. Seed turnout ranged from a low of 44.8% for All-Tex Nitro-44 B2RF and NexGen 1511B2RF to a high of 48.1% for All-Tex 106466B2RF. Bur cotton yields averaged 2618 lb/acre with a high of 2819 lb/acre for PhytoGen 499WRF, and a low of 2257 lb/acre for NexGen 4012B2RF. After adding lint and seed value, and subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $500.37 (PhytoGen 499WRF) to a low of $382.63 (All-Tex 106466B2RF), a difference of $117.73.

Micronaire values ranged from a low of 4.5 for All-Tex Nitro-44 B2RF to a high of 5.2 for Stoneville 4288B2RF and NexGen 1511B2RF. Staple averaged 34.3 across all varieties with a low of 32.4 for NexGen 1511B2RF and a high of 35.9 for All-Tex Nitro-44 B2RF. Strength values averaged 29.3 g/tex with a high of 31.7 g/tex for All-Tex Nitro-44 B2RF and a low of 27.0 g/tex for All-Tex 106466B2RF.

Objective The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton variety under light southern root-knot nematode pressure in Gaines County.

Materials and Methods

Varieties: All-Tex 106466B2RF, All-Tex Nitro-44 B2RF, Deltapine 1044B2RF, Deltapine 174RF, NexGen 1511B2RF, NexGe 4012B2RF, PhytoGen 367WRF, PhytoGen 499WRF, Stoneville 4288B2RF, Stoneville 5458B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 4 seeds/row-ft in 36-inch row spacing

Plot size: 6 rows by variable length of field (1153ft to 2278ft long)

Planting date: 18-May

Soil Texture: Sandy

Irrigation: This location was under a LESA center pivot. This trial received approximately 15.49 inches of irrigation and rainfall throughout the growing season.

Harvest: Plots were harvested on 20-October using a commercial stripper harvester. Harvest 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 AgriLife Research and Extension Center at Lubbock to determine gin turnouts.

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

Ginning cost and seed values: Ginning costs were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology costs were calculated using the appropriate seeding rate (4 seed/row-ft) for the 36 row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls

Results and Discussion

Significant differences were observed for all the yield, economic, and some HVI fiber quality parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 29.29% and a high of 35.2% for All-Tex Nitro-44 B2RF and Deltapine 174RF, respectively. Seed turnout ranged from a low of 44.8% for All-Tex Nitro-44 B2RF and NexGen 1511B2RF to a high of 48.1% for All-Tex 106466B2RF. Bur cotton yields averaged 2618 lb/acre with a high of 2819 lb/acre for PhytoGen 499WRF, and a low of 2257 lb/acre for NexGen 4012B2RF. Lint yield varied with a low of 738 lb/acre (All-Tex 106466B2RF) and a high of 943 lb/acre (PhytoGen 499WRF). Seed yield ranged from a high of 1294 lb/acre for Stoneville 4288B2RF to a low of 1080 lb/acre for NexGen 4012B2RF. Lint loan values ranged from a low of $0.4892/lb (NexGen 1511B2RF) to a high of $0.5635/lb (All-Tex Nitro-44 B2RF). After adding lint and seed value, total value/acre for varieties ranged from a low of $534.62 for All-Tex 106466B2RF to a high of $669.992 for PhytoGen 499WRF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $500.37 (PhytoGen 499WRF) to a low of $382.63 (All-Tex 106466B2RF), a difference of $117.73.

Micronaire values ranged from a low of 4.5 for All-Tex Nitro-44 B2RF to a high of 5.2 for Stoneville 4288B2RF and NexGen 1511B2RF. Staple averaged 34.3 across all varieties with a low of 32.4 for NexGen 1511B2RF and a high of 35.9 for All-Tex Nitro-44 B2RF. Strength values averaged 29.3 g/tex with a high of 31.7 g/tex for All-Tex Nitro-44 B2RF and a low of 27.0 g/tex for All-Tex 106466B2RF. Elongation ranged from a high of 9.0% for Deltapine 1044B2RF to a low of 5.9% for NexGen 4012B2RF. Values for reflectance (Rd) and yellowness (+b) averaged 79.5 and 8.6, respectively.

Conclusions

These data indicate that differences can be obtained in terms of net value/acre and fiber quality under light southern root-knot nematode pressure. During the 2012 growing season Gaines County experienced high temperatures and very little rainfall. The environmental conditions prior to and during the growing season were a limiting factor in the varieties performance overall. It should be noted that no inclement weather was encountered at this location prior to harvest and therefore, no pre-harvest losses were observed. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

Acknowledgements

Appreciation is expressed to Scott Nolen Farms for the use of his land, equipment and labor for this demonstration.

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

Table 1. Harvest results from the Cotton Variety Trial Under Light Root-Knot Nematode Pressure, Scott Nolen Farm, Seminole, TX, 2012.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	-------- % --------		---------- lb/acre ----------			$/lb	---------- $/acre ----------						
PhytoGen 499WRF	33.5	45.3	2819	943	1277	0.5412	510.42	159.57	669.99	84.58	85.05	500.37	a
PhytoGen 367WRF	32.0	45.8	2786	892	1276	0.5495	489.90	159.48	649.39	83.59	85.05	480.75	ab
Deltapine 174RF	35.2	45.6	2533	892	1154	0.5270	470.33	144.29	614.62	76.00	69.94	468.69	abc
Stoneville 5458B2RF	33.4	46.2	2756	919	1273	0.5063	465.53	159.12	624.65	82.69	84.45	457.50	bc
Deltapine 1044B2RF	31.0	46.2	2689	834	1242	0.5260	438.56	155.30	593.86	80.68	79.53	433.64	cd
Stoneville 4288B2F	30.5	46.2	2802	854	1294	0.5158	440.28	161.81	602.09	84.06	84.45	433.58	cd
NexGen 1511B2RF	35.1	44.8	2551	896	1144	0.4892	438.07	142.95	581.03	76.54	77.73	426.76	cd
All-Tex Nitro-44 B2RF	29.2	44.8	2590	756	1160	0.5635	426.02	145.01	571.03	77.71	80.23	413.08	de
NexGen 4012B2RF	32.8	47.8	2257	741	1080	0.5427	401.86	134.95	536.81	67.71	75.45	393.65	de
All-Tex 106466B2RF	30.9	48.1	2392	738	1150	0.5297	390.91	143.72	534.62	71.76	80.23	382.63	e
Test average	32.3	46.1	2618	846	1205	0.5291	447.19	150.62	597.81	78.53	80.21	439.06	
CV, %	3.0	1.9	4.7	4.9	4.7	4.0	4.8	4.7	4.8	4.7	--	5.7	
OSL	<0.0001	0.0026	0.0002	<0.0001	0.0014	0.0189	<0.0001	0.0014	0.0002	0.0002	--	0.0003	
LSD	1.7	1.5	212	71	98	0.0364	36.87	12.27	49.05	6.35	--	42.72	

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

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 2. HVI fiber property results from the Cotton Variety Trial Under Light Root-Knot Nematode Pressure, Scott Nolen Farm, Seminole, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex 106466B2RF	4.8	33.4	79.9	27.0	6.7	1.7	80.5	8.3	2.0	1.0
All-Tex Nitro-44 B2RF	4.5	35.9	81.3	31.7	7.9	2.7	80.8	8.1	2.0	1.0
NexGen 1511B2RF	5.2	32.4	80.1	28.4	8.7	2.0	79.6	8.6	2.0	1.0
Deltapine 1044B2RF	5.1	34.5	80.5	30.4	9.0	1.7	80.2	8.1	2.3	1.0
Deltapine 174RF	5.1	34.6	79.6	28.3	7.9	2.0	79.3	8.6	2.3	1.0
NexGen 4012B2RF	5.0	34.7	80.9	30.5	5.9	1.7	79.6	8.8	2.0	1.0
PhytoGen 367WRF	4.8	34.3	80.8	29.4	7.8	1.7	79.9	8.8	2.0	1.0
PhytoGen 499WRF	5.0	35.2	82.8	31.2	8.4	3.0	78.8	8.6	2.7	1.0
Stoneville 4288B2F	5.2	34.2	80.5	27.5	7.4	1.7	79.2	8.7	2.3	1.0
Stoneville 5458B2RF	5.1	33.8	80.0	28.6	7.2	1.0	77.6	9.6	2.0	1.0
Test average	5.0	34.3	80.6	29.3	7.7	1.9	79.5	8.6	2.2	1.0
CV, %	1.6	2.7	1.6	4.4	5.5	49.9	1.1	2.4	--	--
OSL	<0.0001	0.0167	0.2195	0.0031	<0.0001	0.4260	0.0155	<0.0001	--	--
LSD	0.1	1.6	NS	2.2	0.7	NS	1.5	0.4	--	--

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

Replicated LESA Irrigation Cotton Variety Research Trial Under Moderate Root-Knot Nematode Pressure - 2012

Cooperator: Cheuvront Farms

Manda Anderson, Extension Agent - IPM
Dr. Jason Woodward, Extension Plant Pathologist

Gaines County

Summary Significant differences were observed for most of the yield, economic, and HVI fiber quality parameters measured. Bur cotton yields averaged 3331 lb/acre with a high of 3903 lb/acre for Stoneville 4288B2RF, and a low of 3060 lb/acre for FiberMax 9160B2RF. Lint loan values ranged from a low of $0.5233/lb (Deltapine 1044B2RF) to a high of $0.5705/lb (Stoneville 4288B2RF). After adding lint and seed value, and subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $844.68 (Stoneville 4288B2RF) to a low of $608.87 (Phytogen 499WRF), a difference of $235.81.

Micronaire values ranged from a low of 3.0 for Deltapine 1044B2RF to a high of 3.5 for Stoneville 4288B2RF. Staple averaged 36.4 across all varieties with a low of 35.0 for Stoneville 5458B2RF and a high of 37.5 for FiberMax 9160B2RF. Uniformity ranged from a high of 82.4 (FiberMax 9160B2RF) to a low of 78.8 (Stoneville 5458B2RF).

Objective The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton variety under moderate southern root-knot nematode pressure in Gaines County.

Materials and Methods

Varieties: Deltapine 1044B2RF, FieberMax 9160B2RF, PhytoGen 367WRF, PhytoGen 499WRF, Stoneville 4288B2RF, Stoneville 5458B2RF

Experimental design: Randomized complete block with 3 replications

Seeding rate: 4 seeds/row-ft in 36-inch row spacing

Plot size: 6 rows by variable length of field (914ft to 1859ft long)

Planting date: 30-May

Soil Texture: Sandy

Irrigation: This location was under a LESA center pivot. This trial received approximately 12.15 inches of irrigation and rainfall throughout the growing season.

Harvest: Plots were harvested on 23-October using a commercial stripper harvester. Harvest 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 AgriLife Research and Extension Center at Lubbock to determine gin turnouts.

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

Ginning cost and seed values: Ginning costs were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology costs were calculated using the appropriate seeding rate (4 seed/row-ft) for the 36 row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls

Results and Discussion

Significant differences were observed for most of the yield, economic, and HVI fiber quality parameters measured (Tables 1 and 2). Lint turnout was set at 36% for all varieties. Seed turnout ranged from a low of 47.1% for Phytogen 499WRF to a high of 50.1% for Stoneville 4288B2RF. Bur cotton yields averaged 3331 lb/acre with a high of 3903 lb/acre for Stoneville 4288B2RF, and a low of 3060 lb/acre for FiberMax 9160B2RF. Lint yield varied with a low of 1102 lb/acre (FiberMax 9160B2RF) and a high of 1405 lb/acre (Stoneville 4288B2RF). Seed yield ranged from a high of 1957 lb/acre for Stoneville 4288B2RF to a low of 1462 lb/acre for Phytogen 499WRF. Lint loan values ranged from a low of $0.5233/lb (Deltapine 1044B2RF) to a high of $0.5705/lb (Stoneville 4288B2RF). After adding lint and seed value, total value/acre for varieties ranged from a low of $787.07 for PhytoGen 499WRF to a high of $1046.24 for Stoneville 4288B2RF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of $844.68 (Stoneville 4288B2RF) to a low of $608.87 (Phytogen 499WRF), a difference of $235.81.

Micronaire values ranged from a low of 3.0 for Deltapine 1044B2RF to a high of 3.5 for Stoneville 4288B2RF. Staple averaged 36.4 across all varieties with a low of 35.0 for Stoneville 5458B2RF and a high of 37.5 for FiberMax 9160B2RF. Uniformity ranged from a high of 82.4 (FiberMax 9160B2RF) to a low of 78.8 (Stoneville 5458B2RF). Elongation ranged from a high of 8.6% for Deltapine 1044B2RF to a low of 5.2% for FiberMax 9160B2RF. Values for reflectance (Rd) and yellowness (+b) averaged 81.1 and 8.1, respectively.

Conclusions

These data indicate that differences can be obtained in terms of net value/acre and fiber quality under moderate southern root-knot nematode pressure. During the 2012 growing season Gaines County experienced high temperatures and very little rainfall. The environmental conditions prior to and during the growing season were a limiting factor in the varieties performance overall. It should be noted that no inclement weather was encountered at this location prior to harvest and therefore, no pre-harvest losses were observed. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

Acknowledgements

Appreciation is expressed to Cheuvront Farms for the use of his land, equipment and labor for this demonstration.

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Table 1. Harvest results from the Cotton Variety Trial Under Moderate Root-knot Nematode Pressure, Cheuvront Farms Farm, Seminole, TX, 2012.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value	
	-------- % --------		---------- lb/acre ----------			$/lb	---------- $/acre ----------						
Stoneville 4288B2F	36.0	50.1	3903	1405	1957	0.5705	801.65	244.58	1046.24	117.10	84.45	844.68	a
PhytoGen 367WRF	36.0	47.5	3485	1255	1655	0.5357	672.07	206.90	878.97	104.55	85.05	689.36	b
Deltapine 1044B2RF	36.0	48.0	3257	1172	1563	0.5233	613.55	195.37	808.92	97.70	79.53	631.68	c
FiberMax 9160B2F	36.0	49.8	3060	1102	1523	0.5577	614.36	190.35	804.71	91.81	84.45	628.46	c
Stoneville 5458B2RF	36.0	49.7	3177	1144	1580	0.5323	608.93	197.54	806.47	95.32	84.45	626.69	c
PhytoGen 499WRF	36.0	47.1	3105	1118	1462	0.5407	604.35	182.72	787.07	93.15	85.05	608.87	c
Test average	36.0	48.7	3331	1199	1623	0.5434	652.48	202.91	855.39	99.94	83.83	671.62	
CV, %	--	3.3	3.6	3.6	3.6	3.1	3.6	3.6	3.6	3.6	--	4.1	
OSL	--	0.1660	<0.0001	<0.0001	<0.0001	0.054†	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD	--	NS	219	79	106	0.0249	42.99	13.35	56.33	6.56	--	49.77	

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

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 2. HVI fiber property results from the Cotton Variety Trial Under Moderate Root-knot Nematode Pressure, Cheuvront Farms Farm, Seminole, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Deltapine 1044B2RF	3.0	36.5	80.9	32.3	8.6	2.0	82.3	7.9	2.0	1.0
FiberMax 9160B2F	3.3	37.5	82.4	31.7	5.2	1.7	83.0	7.5	1.7	1.0
PhytoGen 367WRF	3.2	36.1	81.5	31.3	8.1	3.0	79.7	8.4	2.0	1.0
PhytoGen 499WRF	3.2	36.7	82.1	31.9	7.2	2.7	80.6	8.0	2.3	1.0
Stoneville 4288B2F	3.5	36.6	80.9	30.1	6.9	2.3	81.8	8.2	2.0	1.0
Stoneville 5458B2RF	3.3	35.0	78.8	31.4	7.0	2.7	79.2	8.8	2.0	1.3
Test average	3.3	36.4	81.1	31.4	7.2	2.4	81.1	8.1	2.0	1.1
CV, %	4.6	1.6	1.1	3.4	15.2	33.9	1.2	4.1	--	--
OSL	0.0222	0.0065	0.0064	0.2644	0.0420	0.4173	0.0040	0.0115	--	--
LSD	0.3	1.0	1.6	NS	2.0	NS	1.7	0.6	--	--

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

Alternatives to Temik 15G for Management of Root-knot Nematodes

By: Terry Wheeler (Texas AgriLife Research, Lubbock), Kerry Siders (Texas AgriLife Extension Service, Hockley/Cochran counties), Manda Anderson (Texas AgriLife Extension Service, Gaines county), Scott Russell (Texas AgriLife Extension Service, Terry/Yoakum counties)

Introduction: Root-knot nematodes infest at least 40% of the cotton acreage in the Southern High Plains. Prior to 2011, many cotton producers used Temik 15G (aldicarb) to manage nematode problems. Alternative methods of nematode control include: nematicide seed treatments (Aeris, Avicta), fumigation (Telone II, Vapam), crop rotation (peanut), and using partially resistant cultivars (Deltapine 174RF, Phytogen (PHY) 367WRF, Stoneville (ST) 4288B2F, and ST 5458B2F). A test was initiated in 2011 to examine the chemical and varietal components of nematode control at two sites, and was funded by the Plains Cotton Improvement Program. This project was continued in 2012 at four sites, and funded by the Texas Cotton State Support Committee.

Chemical treatments in all tests are:

1) None (no insecticide or nematicides)
2) Cruiser (insecticide only)
3) Avicta Complete Cotton (insecticide, nematicide, and extra fungicide protection)
4) Cruiser on seed, plus Vydate CLV (insecticide/nematicide) at the 4-5 leaf stage
5) Avicta Complete Cotton on seed, plus Vydate CLV
6) Temik 15G at 5 lbs/acre in the furrow at planting
7) Cruiser on seed and fumigation with Telone II (3 gal/acre) before planting.

Varieties in the test include Fibermax (FM) 9160B2F as a susceptible variety at all sites; PHY 367WRF as a partially resistant variety at Whiteface and Brownfield; and ST 5458B2F as a partially resistant variety at Brownfield, Lamesa, and Seminole.

All sites were planted with four row plots, 33-36 feet long, with a factorial arrangement of all treatments, in a randomized complete block design with six replications. Data collected included plant stand, galls/root at 35 days after planting, root-knot nematode density in August, and yield.

Results:

Lamesa (LAM12): The root-knot nematode pressure was low at this site early in the season, with an average of 1.7 galls for FM 9160B2F and 1.2 galls/root for ST 5458B2F (Table 1). There was no chemical effect on galls/root (Table 2), root-knot nematode density (Table 3), yield (Table 4), or net value (yield x loan value – chemical and variety costs) (Table 5). Buildup of the nematode population during the season was good, with an average of 9,446 root-knot/500 cm^3 soil for FM

9180B2F and 3,883 root-knot/500 cm^3 soil for ST 5458B2F (Table 1). The partially resistant ST 5458B2F yielded more (1,302 lbs of lint/acre) than FM 9160B2F (1,262 lbs of lint/acre, Table 1). However, the net value was higher for FM 9160B2F ($713/acre) than for ST 5458B2F ($687/acre) in 2012 (Table 1). The average values for all variety/chemical combinations for galls/root, root-knot nematode density, yield and net value for Lamesa are in Table 6.

Table 1. Effect of variety[1] on root galling, root-knot nematode (RK) density, lint yield, and value ($)/acre (lint yield x loan value) for six locations[2].

	Galls		RK/500 cm^3 soil		Lint yield		Yield x loan ($/a)	
Location	**S**	**R**	**S**	**R**	**S**	**R**	**S**	**R**
WF11	5.2 a[3]	4.0 a	9,538 a	1,090 b	1,115 b	1,241 a	1,026 b	1,131 a
WF12	1.4 a	0.3 b	4,418 a	615 b	700 b	742[4] a	381 b	401 a[1]
SEM11	13.3 a	10.0 b	23,777 a	8,147 b	804 b	1,002 a	721 b	865 a
SEM12	1.2 a	0.5 b	10,690 a	2,291 b	1,096 a	1,093 a	544 a	543 a
LAM12	1.7 a	1.2 b[4]	9,447 a	3,883 b	1,262 b	1,302 a[5]	713 a	687 b
BF12	7.0 a	3.3 c	14,295 a	6,851 b	556 b	606 a	284 b	308 a
		5.0 b		8,354 b		578 ab		278 b
Average	**5.3**	**3.5**	**12,351**	**4,462**	**870**	**938**	**565**	**602**

[1]The susceptible (S) variety was Fibermax 9160B2F. The partially resistant (R) variety was either (Stoneville 5458B2F or Phytogen 367WRF). At the BF12 site, both partially resistant varieties were tested, with PHY 367WRF as the top entry and ST 5458B2F as the bottom entry.
[2]There were two locations in 2011 (WF11= Whiteface 2011 and SEM11 = Seminole 2011), and four locations in 2012 (WF12, SEM12, LAM12 (Lamesa, 2012), and BF12 (Brownfield 2012).
[3]Different letters indicate significant differences between varieties within a location, at $P = 0.05$, unless otherwise indicated.
[4]$P \leq 0.054$.
[5]$P = 0.077$.

Table 2. Effect of nematicides on root galling at approximately 35 days after planting at six locations[2] tested in 2011 or 2012.

Chemical[1]	WF11	WF12	SEM11	SEM12	LAM12	BF12	Average
None	4.6 a[3]	0.7 a	13.8 a	1.6 a	1.9 a	5.5 a	4.7
Insecticide (I)	1.8 a	1.5 a	12.8 a	0.3 a	0.9 a	5.7 a	3.8
NST[1]	5.5 a	0.5 a	11.6 a	1.1 a	1.4 a	5.2 a	4.2
I + Vydate (V)	1.2 a	1.2 a	13.2 a	0.5 a	1.6 a	3.8 a	3.6
NST + V	4.7 a	0.6 a	13.1 a	1.0 a	1.6 a	4.4 a	4.2
Temik 15G	7.1 a	0.7 a	6.1 b	0.2 a	1.6 a	5.5 a	3.5
I + Telone II	4.2 a	0.6 a	5.3 b	0.8 a	1.2 a	5.4 a	2.9

[1]Insecticide was Cruiser, NST was Avicta Complete Cotton, which was a nematicide seed treatment (Avicta 500) that also included an insecticide (Cruiser) and fungicide combination (Dynasty). Vydate CLV (17 oz/acre) was included as an over-the-top banded nematicide at the 4-5 leaf stage. Temik 15G (aldicarb) was applied at 5 lbs/acre in the furrow at planting. Telone II (3 gal/a) was applied in the bed before planting (number of days varied with location) at a depth of 12 inches and then seed was treated with Cruiser to provide insect protection.
[2]There were two locations in 2011 (WF11= Whiteface 2011 and SEM11 = Seminole 2011), and four locations in 2012 (WF12, SEM12, LAM12 (Lamesa, 2012), and BF12 (Brownfield 2012).

[3]Different letters indicate significant differences between varieties within a column at $P = 0.05$.

Table 3. Effect of nematicides on root-knot nematode density/500 cm^3 soil in August at six locations[2] tested in 2011 or 2012.

Chemical[1]	WF11	WF12	SEM11	SEM12	LAM12	BF12	Average
None	10,390 a[3]	2,320 a	17,835 a	4,278 a	4,112 a	11,740 a	8,446
Insecticide (I)	5,240 a	3,510 a	12,315 a	3,932 a	8,035 a	14,200 a	7,872
NST	4,190 a	1,270 a	21,330 a	3,928 a	3,960 a	8,339 a	7,170
I + Vydate (V)	150 b	2,660 a	16,095 a	7,009 a	4,437 a	6,349 a	6,117
NST + V	6,480 a	2,930 a	18,240 a	11,300 a	10,703 a	8,052 a	9,618
Temik 15G	5,350 a	3,967 a	14,670 a	8,033 a	10,325 a	7,343 a	8,281
I + Telone II	5,280 a	960 a	11,700 a	6,952 a	5,083 a	12,810 a	7,131

[1]Insecticide was Cruiser, NST was Avicta Complete Cotton, which was a nematicide seed treatment (Avicta 500) that also included an insecticide (Cruiser) and fungicide combination (Dynasty). Vydate CLV (17 oz/acre) was included as an over-the-top banded nematicide at the 4-5 leaf stage. Temik 15G (aldicarb) was applied at 5 lbs/acre in the furrow at planting. Telone II (3 gal/a) was applied in the bed before planting (number of days varied with location) at a depth of 12 inches and then seed was treated with Cruiser to provide insect protection.
[2]There were two locations in 2011 (WF11= Whiteface 2011 and SEM11 = Seminole 2011), and four locations in 2012 (WF12, SEM12, LAM12 (Lamesa, 2012), and BF12 (Brownfield 2012).
[3]Different letters indicate significant differences between varieties within a column at $P = 0.05$.

Table 4. Effect of nematicides on lint yield (lbs/a) at six locations[2] tested in 2011 or 2012.

Chemical[1]	WF11	WF12	SEM11	SEM12	LAM12	BF12	Average
None	1,158 a[3]	726 a	857 a	1,126 a	1,229 a	598 a	949
Insecticide (I)	1,136 a	716 a	888 a	1,137 a	1,254 a	544 a	946
NST	1,201 a	736 a	850 a	1,101 a	1,285 a	579 a	959
I + Vydate (V)	1,214 a	735 a	981 a	997 a	1,299 a	558 a	964
NST + V	1,131 a	719 a	926 a	1,120 a	1,329 a	604 a	972
Temik 15G	1,123 a	674 a	886 a	1,078 a	1,266 a	588 a	936
I + Telone II	1,285 a	741 a	934 a	1,099 a	1,314 a	592 a	994

[1]Insecticide was Cruiser, NST was Avicta Complete Cotton, which was a nematicide seed treatment (Avicta 500) that also included an insecticide (Cruiser) and fungicide combination (Dynasty). Vydate CLV (17 oz/acre) was included as an over-the-top banded nematicide at the 4-5 leaf stage. Temik 15G (aldicarb) was applied at 5 lbs/acre in the furrow at planting. Telone II (3 gal/a) was applied in the bed before planting (number of days varied with location) at a depth of 12 inches and then seed was treated with Cruiser to provide insect protection.
[2]There were two locations in 2011 (WF11= Whiteface 2011 and SEM11 = Seminole 2011), and four locations in 2012 (WF12, SEM12, LAM12 (Lamesa, 2012), and BF12 (Brownfield 2012).
[3]Different letters indicate significant differences between varieties within a column at $P = 0.05$.

Table 5. Effect of nematicides on net value[1] ($/acre) at six locations[2] tested in 2011 or 2012.

Chemical[3]	WF11	WF12	SEM11	SEM12	LAM12	BF12	Average
None	1,059 a[4]	320 a	664 b	485 a	596 a	226 a	558
Insecticide (I)	1,031 a	306 ab	709 ab	482 a	602 a	205 ab	556
NST[1]	1,082 a	309 ab	638 b	457 ab	611 a	199 b	549
I + Vydate (V)	1,097 a	311 ab	783 a	407 bc	622 a	185 b	568
NST + V	1,013 a	295 ab	705 ab	460 ab	629 a	203 ab	551
Temik 15G	1,010 a	274 b	661 b	444 ab	599 a	197 b	531
I + Telone II	1,093 a	245 c	643 b	389 c	561 a	130 c	510

[1]Net value is the (yield (lbs of lint/acre) x loan value) – variety cost ($74.35/acre) – chemical cost. Chemical costs for Cruiser was $8.10/acre, Avicta Complete Cotton was $16.20/acre, Cruiser + Vydate CLV = $13.65/acre, Avicta Complete Cotton + Vydate CLV = $21.75/acre, Temik 15G = $17.50/acre, and Cruiser + Telone II = $82.80/acre.
[2]There were two locations in 2011 (WF11= Whiteface 2011 and SEM11 = Seminole 2011), and four locations in 2012 (WF12, SEM12, LAM12 (Lamesa, 2012), and BF12 (Brownfield 2012).
[3]Insecticide was Cruiser, NST was Avicta Complete Cotton, which was a nematicide seed treatment (Avicta 500) that also included an insecticide (Cruiser) and fungicide combination (Dynasty). Vydate CLV (17 oz/acre) was included as an over-the-top banded nematicide at the 4-5 leaf stage. Temik 15G (aldicarb) was applied at 5 lbs/acre in the furrow at planting. Telone II (3 gal/a) was applied in the bed before planting (number of days varied with location) at a depth of 12 inches and then seed was treated with Cruiser to provide insect protection.
[4]Different letters indicate significant differences between varieties within a column at $P = 0.05$.

Table 6. Measured variables at Lamesa in 2012 for each combination of chemical treatment and variety (Average of six replications).

Variety[1]	Chemical[4]	Plants /ft. row	Galls/ root	RK[2]/ 500 cc soil	Lbs of lint/acre	Net value[3] ($/acre)
FM	None	1.79	2.1	4,760	1,187	601
FM	Insecticide (I)	1.45	1.1	7,070	1,211	641
FM	NST	2.16	1.3	5,020	1,296	622
FM	I+Vydate (V)	1.89	1.7	6,827	1,293	632
FM	NST+Vydate	2.25	2.2	18,980	1,289	608
FM	Temik 15G	2.22	2.4	14,430	1,240	588
FM	I+Telone II	2.13	1.2	9,040	1,320	596
ST	None	2.09	1.7	3,463	1,270	603
ST	Insecticide (I)	1.96	0.7	9,000	1,298	581
ST	NST	2.15	1.6	2,900	1,273	642
ST	I+Vydate (V)	2.48	1.6	2,047	1,306	626
ST	NST+Vydate	2.36	1.0	2,427	1,368	590
ST	Temik 15G	2.32	0.8	6,220	1,293	533
ST	I+Telone II	2.23	1.2	1,127	1,309	596

[1]FM is Fibermax 9160B2F, ST is Stoneville 5458B2F.
[2]RK is root-knot nematode.
[3]Net value is the (yield (lbs of lint/acre) x loan value) – variety cost ($74.35/acre) – chemical cost. Chemical costs for Cruiser was $8.10/acre, Avicta Complete Cotton was $16.20/acre,

Cruiser + Vydate CLV = $13.65/acre, Avicta Complete Cotton + Vydate CLV = $21.75/acre, Temik 15G = $17.50/acre, and Cruiser + Telone II = $82.80/acre.
[4]Insecticide was Cruiser, NST was Avicta Complete Cotton, which was a nematicide seed treatment (Avicta 500) that also included an insecticide (Cruiser) and fungicide combination (Dynasty). Vydate CLV (17 oz/acre) was included as an over-the-top banded nematicide at the 4-5 leaf stage. Temik 15G (aldicarb) was applied at 5 lbs/acre in the furrow at planting. Telone II (3 gal/a) was applied in the bed before planting (number of days varied with location) at a depth of 12 inches and then seed was treated with Cruiser to provide insect protection.

Whiteface 2012 (WF12): The root-knot nematode pressure was low at this site this year, as seen with the low gall ratings (Table 1). There was a variety response to all measured variables, with the susceptible variety having more galls/root and higher density of root-knot nematode than the partially resistant PHY 367WRF (Table 1). PHY 367WRF had higher yield and better net value than the susceptible FM 9160B2F (Table 1). Chemical treatments did not affect root galls (Table 2), root-knot nematode density (Table 3), or lint yield (Table 4). However, the most profitable treatment was the nontreated check, while the fumigation treatment had the lowest net value and Temik 15G had the second lowest net value (Table 5). All variety/treatment combinations are presented in Table 7.

Table 7. Measured variables at Whiteface in 2012 for each combination of chemical treatment and variety (average of six replications).

Variety[1]	Chemical[4]	Plants /ft. row	Galls/ root	RK[2]/ 500 cc Soil	Lbs of Lint/acre	Net value[3] ($/acre)
FM	None	2.4	1.1	4,533	708	311
FM	Insecticide (I)	2.5	2.7	6,680	668	281
FM	NST	2.2	0.7	1,420	698	290
FM	I+Vydate (V)	2.4	2.1	5,120	710	299
FM	NST+Vydate	2.4	1.0	5,120	717	294
FM	Temik 15G	2.4	1.1	6,293	681	279
FM	I+Telone II	2.6	1.0	1,760	716	233
PHY	None	2.7	0.4	107	744	329
PHY	Insecticide (I)	2.5	0.4	340	764	331
PHY	NST	2.6	0.3	1,120	774	329
PHY	I+Vydate (V)	2.6	0.3	200	760	324
PHY	NST+Vydate	2.5	0.3	740	722	295
PHY	Temik 15G	2.7	0.4	1,640	668	270
PHY	I+Telone II	2.4	0.3	160	765	258

[1]FM is Fibermax 9160B2F, PHY is Phytogen 367WRF.
[2]RK is root-knot nematode.
[3]Net value is the (yield (lbs of lint/acre) x loan value) – variety cost ($74.35/acre for FM or $76.54 for PHY) – chemical cost. Chemical costs for Cruiser was $8.10/acre, Avicta Complete Cotton was $16.20/acre, Cruiser + Vydate CLV = $13.65/acre, Avicta Complete Cotton + Vydate CLV = $21.75/acre, Temik 15G = $17.50/acre, and Cruiser + Telone II = $82.80/acre.
[4]Insecticide was Cruiser, NST was Avicta Complete Cotton, which was a nematicide seed treatment (Avicta 500) that also included an insecticide (Cruiser) and fungicide combination

(Dynasty). Vydate CLV (17 oz/acre) was included as an over-the-top banded nematicide at the 4-5 leaf stage. Temik 15G (aldicarb) was applied at 5 lbs/acre in the furrow at planting. Telone II (3 gal/a) was applied in the bed before planting (number of days varied with location) at a depth of 12 inches and then seed was treated with Cruiser to provide insect protection.

Seminole (SEM12): Root-knot nematode pressure was light early in the season at this site, based on early season gall ratings (Table 1), but did build up adequately over the course of the season. Galls/root and root-knot nematode density was affected by variety (Table 1), where the susceptible variety had higher numbers than the partially resistant ST 5458B2F. Yield and net value (yield x loan value) was similar between both varieties (Table 1). Chemical treatment did not affect galls/root, root-knot nematode density, or yield (Tables 2-4). However, net value was highest for the non-nematicide treatments (untreated check and Cruiser seed treatment) and lowest for plots treated with Temik 15G or Telone II (Table 5). The individual variety/treatment combinations are presented in Table 8.

Table 8. Measured variables at Seminole in 2012 for each combination of chemical treatment and variety (average of six replications).

Variety[1]	Chemical[4]	Plants /ft. row	Galls/ root	RK[2]/ 500 cc soil	Lbs of Lint/acre	Net value[3] ($/acre)
FM	None	2.8	2.8	4,840	1,158	500
FM	Insecticide (I)	2.9	0.3	6,500	1,167	496
FM	NST	3.0	1.1	5,260	1,099	455
FM	I+Vydate (V)	2.8	0.7	12,720	977	397
FM	NST+Vydate	2.9	1.6	20,240	1,070	435
FM	Temik 15G	3.1	0.3	13,890	1,141	474
FM	I+Telone II	2.9	1.2	11,377	1,058	368
ST	None	2.9	0.4	3,717	1,094	470
ST	Insecticide (I)	2.9	0.4	1,363	1,108	469
ST	NST	3.2	1.1	2,597	1,103	458
ST	I+Vydate (V)	3.1	0.4	1,298	1,017	418
ST	NST+Vydate	3.0	0.5	2,360	1,170	486
ST	Temik 15G	3.1	0.2	2,177	1,015	413
ST	I+Telone II	2.8	0.4	2,527	1,140	410

[1]FM is Fibermax 9160B2F, ST is Stoneville 5458B2F.
[2]RK is root-knot nematode.
[3]Net value is the (yield (lbs of lint/acre) x loan value) – variety cost ($74.35/acre) – chemical cost. Chemical costs for Cruiser was $8.10/acre, Avicta Complete Cotton was $16.20/acre, Cruiser + Vydate CLV = $13.65/acre, Avicta Complete Cotton + Vydate CLV = $21.75/acre, Temik 15G = $17.50/acre, and Cruiser + Telone II = $82.80/acre.
[4]Insecticide was Cruiser, NST was Avicta Complete Cotton, which was a nematicide seed treatment (Avicta 500) that also included an insecticide (Cruiser) and fungicide combination (Dynasty). Vydate CLV (17 oz/acre) was included as an over-the-top banded nematicide at the 4-5 leaf stage. Temik 15G (aldicarb) was applied at 5 lbs/acre in the furrow at planting. Telone II (3 gal/a) was applied in the bed before planting (number of days varied with location) at a depth of 12 inches and then seed was treated with Cruiser to provide insect protection.

Brownfield (BF12): Root-knot nematode early season populations were not quite as low at Brownfield as at the other three sites in 2012, but they still were not as high as desirable to show response of nematicides treatments. Most variables measured were affected by variety (galls, root-knot nematode density, yield, and net value, Table 1). Chemical treatment did not affect galls (Table 2), root-knot nematode density (Table 3), or yield (Table 4). However, there was an interaction between variety and chemical treatment with respect to net value (Table 9). In all three varieties, net value was poorer for Telone II than most other treatments, due to the small yield response to this product and high cost of the product. Other differences were inconsistent between varieties. For example the seed treatment Cruiser plus Vydate was among the best treatments with FM 9160B2F, but was one of the poorer treatments for PHY 367WRF (Table 9).

Table 9. Measured variables at Seminole in 2012 for each combination of chemical treatment and variety (average of six replications).

Variety[1]	Chemical[4]	Plants /ft. row	Galls/ root	RK[2]/ 500 cc Soil	Lbs of Lint/acre	Net value[3] ($/acre)
FM	None	2.3	8.6	17,940	582	234 a[5]
FM	Insecticide (I)	2.2	7.8	23,700	486	181 bc
FM	NST	2.2	6.3	10,540	520	181 bc
FM	I+Vydate (V)	2.1	5.5	8,080	578	200 ab
FM	NST+Vydate	2.0	6.4	14,653	555	165 bc
FM	Temik 15G	2.3	8.2	8,590	572	197 ab
FM	I+Telone II	2.2	6.1	16,560	601	151 c
PHY	None	2.1	4.9	8,220	621	239 a
PHY	Insecticide (I)	2.3	4.1	4,500	568	222 a
PHY	NST	2.0	3.0	4,970	617	210 ab
PHY	I+Vydate (V)	1.8	2.6	3,167	549	177 b
PHY	NST+Vydate	2.0	2.7	4,783	644	228 a
PHY	Temik 15G	2.1	2.6	8,140	622	223 a
PHY	I+Telone II	2.0	3.3	14,180	624	158 c
ST	None	2.7	3.1	9,060	591	204 a
ST	Insecticide (I)	2.6	5.3	14,400	577	213 a
ST	NST	2.5	6.2	9,507	600	206 a
ST	I+Vydate (V)	1.9	3.2	7,800	548	176 a
ST	NST+Vydate	3.0	4.2	4,720	613	215 a
ST	Temik 15G	2.7	5.8	5,300	569	171 a
ST	I+Telone II	2.0	6.9	7,690	550	80 b

[1]FM is Fibermax 9160B2F, PHY is Phytogen 367WRF, ST is Stoneville 5458B2F.
[2]RK is root-knot nematode.
[3]Net value is the (yield (lbs of lint/acre) x loan value) – variety cost ($74.35/acre) – chemical cost. Chemical costs for Cruiser was $8.10/acre, Avicta Complete Cotton was $16.20/acre, Cruiser + Vydate CLV = $13.65/acre, Avicta Complete Cotton + Vydate CLV = $21.75/acre, Temik 15G = $17.50/acre, and Cruiser + Telone II = $82.80/acre.

[4]Insecticide was Cruiser, NST was Avicta Complete Cotton, which was a nematicide seed treatment (Avicta 500) that also included an insecticide (Cruiser) and fungicide combination (Dynasty). Vydate CLV (17 oz/acre) was included as an over-the-top banded nematicide at the 4-5 leaf stage. Temik 15G (aldicarb) was applied at 5 lbs/acre in the furrow at planting. Telone II (3 gal/a) was applied in the bed before planting (number of days varied with location) at a depth of 12 inches and then seed was treated with Cruiser to provide insect protection.
[5]Different letters indicate significantly different net values, within a variety (P=0.05).

Summary for 2012

Variety performance was weaker in 2012 than in 2011, which was probably due to much lower root-knot nematode populations early in the growing season. Partially resistant cultivars usually had higher yields in 2012 than the susceptible FM 9160B2F though not in every case. In 2011 the yield advantage of the partially resistant varieties to root-knot nematode was much higher than the susceptible variety. However, in 2012, the partially resistant variety had a higher yield in 3 of 4 sites, and similar yield in one site as the susceptible variety. In 2011, the partially resistant variety returned approximately $124/acre more than the susceptible variety (based yield x loan value). In a very weak nematode year (2012), the partially resistant variety returned approximately $4/acre more than the susceptible variety.

In general, chemical performance was poor to none in 2012, so the "best" treatment was to use no chemical control of nematodes or thrips. Fumigation with Telone II did not provide for much of a yield boost, and had a very high cost ($82.80/acre for fumigation plus Cruiser treated seed). This resulted in a lower net return than all other treatments, consistently. Probably with the low nematode pressure, fumigation would not have been cost effective, but also there have been problems in getting optimal application of fumigation. This product should go out in moist, but not wet soil, and the soil should not receive irrigation or rain for at least 48 hrs after application. We have made the applications either in dry soil (before prewatering), or in wet soil during the prewatering phase, so this treatment probably hasn't gotten a fair test. The other chemical treatments were applied adequately. Vydate CLV was a fairly consistent treatment in 2011, but did not look effective in 2012, though it may have been that early season nematode pressure was too low for Vydate CLV to act on anything. The only treatment that is "season-long" is resistant variety, and they were effective as seen with the significant reductions in galls/root and root-knot nematode density in August at all sites.

Response of cotton varieties to diseases on the Texas High Plains

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Table 1. Response of commercially available cotton cultivars to Verticillium wilt, bacterial blight, root-knot nematode and Fusarium wilt.

Brand	Variety	Verticillium wilt	Bacterial blight	Root-knot nematode	Fusarium wilt
All-Tex	All-Tex 65207B2RF	I	Unk	S	S
All-Tex	All-Tex ApexB2RF	I	S	S	S
All-Tex	All-Tex AridB2RF	Poor	S	S	S
All-Tex	All-Tex DineroB2RF	Unk	S	S	S
All-Tex	All-Tex EdgeB2RF	I	S	S	S
All-Tex	All-Tex EpicRF	Poor	S	S	S
All-Tex	All-Tex MarathonB2RF	Poor	R	S	S
All-Tex	All-Tex Nitro-44B2RF	I	R	S	S
All-Tex	All-Tex OrbitRF	I	S	S	S
All-Tex	All-Tex Patriot+RF	I	S	S	S
All-Tex	All-Tex RapidB2RF	Poor	Unk	S	S
All-Tex	All-Tex TitanB2RF	Poor	R	S	S
Americot	AM 1504B2RF	Poor	R	S	S
Americot	AM 1532B2RF	I	S	S	S
Americot	AM 1550B2RF	Poor	S	S	S
Americot	AM 1622B2RF	I	R	S	S
Americot	AM 1664 B2RF	Poor	S	S	S
Croplan Genetics	CG 3020B2RF	Poor	R	S	S
Croplan Genetics	CG 3035RF	Poor	S	S	S
Croplan Genetics	CG 3156B2RF	Unk	S	S	S
Croplan Genetics	CG 3220B2RF	Poor	S	S	S
Croplan Genetics	CG 3520B2RF	I	S	S	S
Croplan Genetics	CG 3787B2RF	Unk	R	S	S
Deltapine	DP 0912B2RF	I	S	S	S
Deltapine	DP 0920B2RF	Good	R	S	S
Deltapine	DP 09242RF	I	S	S	S
Deltapine	DP 0935B2RF	I	S	S	S
Deltapine	DP 0949B2RF	I	S	S	S
Deltapine	DP 1028B2RF	Poor	S	S	S
Deltapine	DP 1032B2RF	Poor	PR	S	S
Deltapine	DP 1034B2RF	Poor	S	S	S
Deltapine	DP 104B2RF	Good	S	S	S
Deltapine	DP 1044B2RF	I	S	S	S
Deltapine	DP 1048B2RF	Poor	S	S	S
Deltapine	DP 1050B2RF	Poor	S	S	S
Deltapine	DP 1133B2RF	I	R	S	S
Deltapine	DP 1137B2RF	Poor	S	S	S
Deltapine	DP 121RF	Poor	S	S	S
Deltapine	DP 1212B2RF	Poor-I	S	S	S

Brand	Variety	Verticillium wilt	Bacterial blight	Root-knot nematode	Fusarium wilt
Deltapine	DP 1219B2RF	I	S	S	S
Deltapine	DP 1252B2RF	Poor	S	S	S
Deltapine	DP 141B2RF	Poor	S	S	S
Deltapine	DP 161B2RF	I	S	S	S
Deltapine	DP 164B2RF	I	S	S	S
Deltapine	DP 174RF	I	S	PR	PR
Fibermax	FM 1740B2F	I- good	R	S	S
Fibermax	FM 1773LLB2	Unk	S	S	S
Fibermax	FM 1845LLB2	Unk	PR	S	S
Fibermax	FM 1880B2F	Good	R	S	S
Fibermax	FM 1944GLB2	Good	S	S	S
Fibermax	FM 2011GT	Good	R	PR	Unk
Fibermax	FM 2484B2F	Good	R	S	S
Fibermax	FM 2989GLB2	Good	R	S	S
Fibermax	FM 8270GLB2	I	Unk	S	S
Fibermax	FM 832LL	Unk	R	S	S
Fibermax	FM 835LLB2	Unk	Unk	S	S
Fibermax	FM 840B2F	Poor	R	S	S
Fibermax	FM 9058F	Good	R	S	S
Fibermax	FM 9063B2F	Good	R	S	S
Fibermax	FM 9101GT	Unk	R	S	S
Fibermax	FM 9103GT	Poor	I	S	S
Fibermax	FM 9160B2F	Good	R	S	S
Fibermax	FM 9170B2F	Good	R	S	S
Fibermax	FM 9180B2F	Good	R	S	S
Fibermax	FM 9250GL	Good	R	S	S
Fibermax	FM 955LLB2	Unk	R	S	S
Fibermax	FM 958LL	Good	R	S	S
NexGen	NG 1511B2RF	Poor	Unk	S	S
NexGen	NG 1551RF	I	S	S	S
NexGen	NG 1556RF	Poor	S	S	S
NexGen	NG 1572RF	Poor	R	S	S
NexGen	NG 2501B2RF	Poor	PR	S	S
NexGen	NG 2549B2RF	Good	S	S	S
NexGen	NG 3273 B2RF	Poor	R	S	S
NexGen	NG 3348B2RF	Good	PR	S	S
NexGen	NG 3410RF	Good	PR	S	S
NexGen	NG 3538RF	Poor	S	S	S
NexGen	NG 3550RF	I	S	S	S
NexGen	NG 4010B2RF	Good	R	S	S
NexGen	NG 4012B2RF	Good	R	S	S
NexGen	NG 4111RF	Good	R	S	S
Phytogen	PHY 315RF	Poor	S	S	S

Brand	Variety	Verticillium wilt	Bacterial blight	Root-knot nematode	Fusarium wilt
Phytogen	PHY 367ERF	I	S	PR	PR
Phytogen	PHY 375WRF	Poor	R	S	S
Phytogen	PHY 485WRF	I	S	S	S
Phytogen	PHY 499WRF	I	S	S	S
Phytogen	PHY 525RF	I	Unk	S	S
Phytogen	PHY 565WRF	I	S	S	S
Stoneville	ST 4145LLB2	Unknown	S	S	S
Stoneville	ST 4288B2F	I	S	PR	PR
Stoneville	ST 4498B2F	I	S	S	S
Stoneville	ST 4946GLB2	Poor	S	PR	Unk
Stoneville	ST 5288B2F	I	R	S	S
Stoneville	ST 5458B2F	Poor	S	PR	PR
Stoneville	ST 6448GLB2	I	R	S	S

I=Intermediate, PR=partially resistant, R=Resistant, S=Susceptible, Unk=unknown.

Verticillium wilt variety test results, 2012

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and

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There were six locations planted in 2012, all with a history of Verticillium wilt. Each site was planted with 32 entries, in plots that were 36 ft. long and 2 rows wide, with four replications per variety, arranged in a randomized complete design. The hot weather in 2012 resulted in little to no wilt at three of the six sites, so the three sites that had sufficient wilt to impact yield will be presented. These sites are Floydada, Plainview, and Garden City. The results were remarkably similar in terms of the top yielding varieties at each site. The following varieties yielded in the top five at each of the Verticillium wilt sites that they were planted: Fibermax (FM) 2484B2F, FM 2011GT, FM 9170B2F, BX 1347GLB2, and NexGen 4111RF.

Table 5. Effect of variety in a Verticillium wilt trial in Garden City on yield and wilt.

Variety[a]	Yield X Loan	Lbs of Lint/ Acre	Plants/ Ft. of row	%Wilt On 21 Aug.	Defol-ation on 12 Sept.[b]	Turnout	Loan ($/lb)
FM 2484B2F	1,363	2,454	3.43	7	0.79	0.285	0.556
FM 2011GT	1,357	2,501	3.18	17	1.31	0.316	0.542
NG 4111RF	1,353	2,386	2.61	19	1.50	0.283	0.567
FM 9170B2F	1,321	2,365	2.82	15	1.05	0.284	0.559
FM 9250GL	1,228	2,263	3.05	15	1.50	0.269	0.543
BX 1347GLB2	1,227	2,390	3.52	8	1.05	0.292	0.514
FM 2989GLB2	1,226	2,224	2.63	21	1.38	0.274	0.551
FM 9160B2F	1,213	2,273	2.94	14	1.01	0.293	0.534
NG 4012B2RF	1,170	2,186	2.83	15	1.53	0.283	0.536
AT CR253B2RF	1,158	2,218	2.76	19	1.54	0.250	0.522
AT Nitro-44B2RF	1,126	2,133	2.68	18	1.50	0.282	0.528
DP 0935B2RF	1,124	2,054	2.79	23	2.01	0.291	0.548
FM 1944GLB2	1,102	2,082	2.91	15	1.58	0.280	0.529
FM 9180B2F	1,094	2,114	2.81	21	1.37	0.264	0.518
DP 1137B2RF	1,062	1,939	2.58	28	1.78	0.303	0.548
DP 1133B2RF	1,052	1,989	1.97	34	1.66	0.293	0.529
BX 1346GLB2	1,049	2,039	2.76	26	2.11	0.269	0.515
DP 1050B2RF	1,034	1,835	2.21	36	1.80	0.303	0.564
DP 1044B2RF	1,030	1,987	2.94	19	1.74	0.259	0.493
DP 1032B2RF	1,019	1,872	2.09	34	1.93	0.294	0.545
BX 1348GLB2	994	1,949	3.10	20	1.70	0.279	0.510
FM 8720GLB2	986	1,858	2.89	10	1.35	0.275	0.531
PG 499WRF	943	1,798	3.07	23	1.81	0.278	0.525
NG X00012	937	1,694	1.94	48	1.80	0.303	0.553
DG 8	930	1,742	2.95	22	2.07	0.270	0.534
DP 1252B2RF	929	1,750	2.05	41	1.82	0.305	0.531
DP 0912B2RF	923	1,750	2.22	27	1.83	0.282	0.528
PG 375WRF	918	1,736	2.48	21	2.13	0.273	0.529
DG 10	915	1,690	3.12	31	2.08	0.279	0.541
DP 1048B2RF	914	1,671	2.40	29	1.82	0.283	0.547
AM 1550B2RF	835	1,684	2.85	25	2.44	0.264	0.498
AT CR106466B2RF	777	1,641	2.94	20	1.66	0.311	0.474
Minimum Significant Difference (0.05)	108	203	0.34	9	0.4	0.037	0.053

[a]AM=Americot, AT = All Tex, BX = Experimental for Bayer CropScience, DP=Deltapine, DG = DynaGro, FM = Fibermax, NG = NexGen, PG=Phytogen, ST = Stoneville.

[b]The defoliation goes from 0 (no defoliation), 1 = 1/3 or less of plant is defoliated, 2 = 1/3 – 2/3 of plant is defoliated, and 3 = > 2/3 of plant is defoliated.

Table 6. Effect of variety on HVI ratings in a Verticillium wilt field in Garden City.

Variety[a]	Micronaire	Length	Uniformity	Strength	Elongation	Rd	+b	Leaf
AM 1550B2RF	3.40	1.050	78.60	28.00	9.65	75.6	7.90	2.0
AT CR106466B2RF	3.30	1.060	77.55	27.90	8.90	74.8	7.65	2.5
AT CR253B2RF	4.75	1.050	80.35	28.25	9.70	77.2	7.80	1.0
AT Nitro-44B2RF	3.60	1.195	82.30	32.45	10.40	74.8	7.80	3.0
BX 1346GLB2	3.35	1.100	80.65	30.85	10.40	74.7	7.90	2.0
BX 1347GLB2	4.20	1.070	77.20	26.05	7.75	74.5	7.55	3.5
BX 1348GLB2	3.65	1.105	79.15	27.65	9.40	75.4	7.65	3.0
DG 10	3.60	1.135	81.15	29.25	9.50	75.2	7.55	2.0
DG 8	3.45	1.095	80.35	29.85	11.00	75.6	8.75	1.0
DP 0912B2RF	3.85	1.055	79.55	29.25	10.20	75.4	7.90	2.5
DP 0935B2RF	3.95	1.075	80.50	29.35	10.15	77.1	8.25	2.0
DP 1032B2RF	3.90	1.075	79.85	28.80	9.35	77.3	8.30	1.5
DP 1044B2RF	3.55	1.090	80.95	30.30	10.40	73.4	7.55	4.5
DP 1048B2RF	3.50	1.125	82.00	29.25	10.75	76.5	8.00	2.0
DP 1050B2RF	3.95	1.105	80.25	28.15	10.50	76.3	8.45	1.5
DP 1133B2RF	4.40	1.070	79.80	29.25	11.35	75.8	8.00	2.0
DP 1137B2RF	4.15	1.075	82.00	28.00	10.70	77.5	8.10	1.5
DP 1252B2RF	4.30	1.070	80.85	27.90	11.30	74.8	8.75	1.0
FM 1944GLB2	3.80	1.100	79.05	27.45	8.85	76.3	6.75	2.0
FM 2011GT	3.90	1.105	81.20	30.65	9.00	75.3	7.70	1.5
FM 2484B2F	3.85	1.170	80.55	30.50	8.70	77.8	7.25	2.0
FM 2989GLB2	4.30	1.105	81.55	30.10	8.15	76.3	7.80	2.5
FM 8720GLB2	3.30	1.105	79.65	29.95	8.85	77.2	7.45	1.5
FM 9160B2F	3.75	1.105	80.80	28.20	8.30	76.7	7.45	2.0
FM 9170B2F	3.85	1.165	81.30	30.90	8.75	77.3	7.45	2.5
FM 9180B2F	3.80	1.105	80.30	30.05	9.60	76.3	7.70	2.5
FM 9250GL	3.60	1.090	79.70	29.00	8.65	75.8	8.10	1.5
NG 4012B2RF	3.95	1.065	79.80	29.05	8.85	77.2	8.00	1.5
NG 4111RF	3.85	1.105	82.25	32.85	10.15	76.0	8.75	1.5
NG X00012	3.95	1.090	80.55	27.60	11.35	77.5	8.40	2.0
PG 375WRF	3.70	1.075	80.95	30.00	8.85	76.4	7.90	2.0
PG 499WRF	3.60	1.110	81.55	31.30	10.70	75.1	8.10	2.5
Minimum Significant Difference (0.05)	0.73	0.059	2.59	2.66	1.36	NS	0.98	2.7

[a]AM=Americot, AT = All Tex, BX = Experimental for Bayer CropScience, DP=Deltapine, DG = DynaGro, FM = Fibermax, NG = NexGen, PG=Phytogen, ST = Stoneville.
[b] NS = not significant.

Replicated Drag Hose vs Sprinkler Irrigation Cotton Research Trial - 2012

Cooperator: Shelby Elam Farms

Manda Anderson, Extension Agent - IPM

Gaines County

Summary Significant differences were observed for most of the yield, economic, and one of the HVI fiber quality parameters measured. After adding lint and seed value, and subtracting ginning, seed and technology fee costs, the net value/acre for the drag hose plots was $794.64, and $704.06 for the sprinkler plots, a difference of $90.58. Micronaire values were 4.8 for drag hose plots and 4.6 for the sprinkler irrigation plots.

Objective The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of cotton under drag hose and sprinkler irrigation in Gaines County.

Materials and Methods

Variety: Deltapine 1044B2RF

Treatments: Sprinkler irrigation vs Drag Hose Irrigation (Sprinkler irrigation was utilized early season to get uniform stand establishment throughout the entire trial. Drag hoses were installed on 25-May on the drag hose plots).

Experimental design: 3 replications

Seeding rate: 3.5 seeds/row-ft in 40-inch row spacing

Plot size: 4 rows by variable length of field (188ft to 606ft long)

Planting date: 14-May

Soil Texture: Sandy

Irrigation: This trial received approximately 8.21 inches of irrigation and rainfall throughout the growing season.

Harvest: Plots were harvested on 11-October using a commercial stripper harvester. Harvest 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 AgriLife Research and Extension Center at Lubbock to determine gin turnouts.

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

Ginning cost and seed values: Ginning costs were based on $3.00 per cwt. of bur cotton and seed value/acre was based on $250/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3.5 seed/row-ft) for the 40 row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: http://www.plainscotton.org/Seed/PCGseed12.xls

Results and Discussion

Significant differences were observed for most of the yield, economic, and one of the HVI fiber quality parameters measured (Tables 1 and 2). Bur cotton yields averaged 3942 lb/acre with the drag hose plots making 4167 lb/acre, and the sprinkler plots making 3717 lb/acre. Lint yield was 1375 lb/acre for the drag hose plots, and 1224 lb/acre for the sprinkler plots. Seed yield for the drag hose plots was 1999 lb/acre, and the sprinkler plots were 1809 lb/acre. After adding lint and seed value, total value/acre for the drag hose plots was $982.28, and $878.19 for the sprinkler plots. When subtracting ginning, seed and technology fee costs, the net value/acre for the drag hose plots was $794.64, and $704.06 for the sprinkler plots, a difference of $90.58. Micronaire values were 4.8 for drag hose plots and 4.6 for the sprinkler irrigation plots.

Conclusions

These data indicate that differences can be obtained in terms of net value/acre when comparing sprinkler irrigation to drag hose irrigation. During the 2012 growing season Gaines County experienced high temperatures and very little rainfall. Additional multi-site and multi-year applied research is needed to evaluate irrigation types across a series of environments.

Acknowledgements

Appreciation is expressed to Shelby Elam Farms for the use of his land, equipment and labor for this demonstration.

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

Table 1. Harvest results from the Drag Hose Vs Sprinkler Irrigation, Shelby Elam Farm, Seminole, TX, 2012.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value
	-------- % --------		---------- lb/acre ----------			$/lb	---------- $/acre ----------					
Drag Hose	33.0	48.0	4167	1375	1999	0.5325	732.38	249.90	982.28	125.00	62.63	794.64 a
Sprinkler	32.9	48.7	3717	1224	1809	0.5328	652.11	226.08	878.19	111.50	62.63	704.06 b
Test average	33.0	48.3	3942	1300	1904	0.5327	692.25	237.99	930.23	118.25	62.63	749.35
CV, %	1.5	1.9	3.3	3.3	3.2	3.1	3.3	3.2	3.2	3.3	--	3.5
OSL	0.8259	0.4581	0.0503†	0.0492	0.0617†	0.9825	0.0491	0.0617†	0.0518†	0.0503†	--	0.0521†
LSD	NS	NS	307	150	145	NS	79.45	18.13	72.04	9.19	--	62.85

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.
CV - coefficient of variation.
OSL - observed significance level, or probability of a greater F value.
LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level, NS - not significant.
Note: some columns may not add up due to rounding error.

Assumes:
$3.00/cwt ginning cost.
$250/ton for seed.
Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 2. HVI fiber property results from the Drag Hose Vs Sprinkler Irrigation, Shelby Elam Farm, Seminole, TX, 2012.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32^{nds} inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
Drag Hose	4.8	33.5	80.6	28.4	8.0	1.7	78.2	9.0	2.0	1.0
Sprinkler	4.6	33.7	80.6	28.6	8.3	1.7	78.0	8.9	2.7	1.0
Test average	4.7	33.6	80.6	28.5	8.2	1.7	78.1	9.0	2.3	1.0
CV, %	1.5	1.0	2.3	2.4	13.6	42.4	0.2	1.2	--	--
OSL	0.0742†	0.5286	1.0000	0.7586	0.7483	1.0000	0.3701	0.5286	--	--
LSD	0.2	NS	NS	NS	NS	NS	NS	NS	--	--

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

Bayer CropScience Irrigated CAP Trial
Seminole, TX - 2012

Cooperator: Jud Cheuvront

Manda Anderson, Extension Agent - IPM, Gaines County

Planted: 17-May
Harvested: 12-November

Table 1. Harvest results from the Bayer CropScience Irrigated CAP Trial (1 replication), Cheuvront Farms, Seminole, TX, 2012.

Variety	Lint Yield (lbs/A)	Turnout	Mic	Staple	Strength	Unif	Loan Value* (¢/lb)	Value / A ($/A)
FM 2484B2F	2,089	0.369	4.03	39	30.9	83.0	57.45	$1,200
FM 2989GLB2	2,050	0.369	4.19	37	28.9	80.8	56.95	$1,168
BX 1347GLB2	1,977	0.355	4.37	39	29.0	83.2	57.10	$1,129
FM 1944GLB2-PV	1,962	0.344	3.62	39	33.1	81.6	57.25	$1,123
FM 9170B2F	1,949	0.368	3.67	38	31.0	83.2	57.40	$1,118
ST 4946GLB2*	1,798	0.375	3.99	38	31.2	83.6	57.55	$1,035
FM 1944GLB2	1,797	0.357	3.79	39	32.9	82.1	57.45	$1,032
FM 1740B2F	1,796	0.361	3.91	37	30.8	83.4	57.45	$1,032
ST 6448GLB2**	1,765	0.354	3.73	39	30.5	82.9	57.35	$1,012
ST 4288B2F	1,760	0.330	3.80	38	29.4	81.7	57.05	$1,004
FM 9180B2F	1,724	0.330	3.95	40	30.5	85.0	57.65	$994
ST 5458B2RF	1,718	0.356	4.28	37	26.3	81.7	56.95	$978

Loan Value calculated from 2012 CCC Loan Schedule using uniform color grade of 21 and uniform leaf grade of 3.

*Tested as BX 1346GLB2 **Tested as BX 1348GLB2

This trial received approximately 19.52 inches of irrigation and rainfall throughout the growing season.

Bayer CropScience Irrigated CAP Trial
Loop, TX - 2012

Cooperator: Ricky Mills

Manda Anderson, Extension Agent - IPM, Gaines County

Planted: 22-May
Harvested: 24-October

Table 1. Harvest results from the Bayer CropScience Irrigated CAP Trial (1 replication), Ricky Mills Farms, Loop, TX, 2012.

Variety	Lint Yield (lbs/A)	Turnout	Mic	Staple	Strength	Unif	Loan Value* (¢/lb)	Value / A ($/A)
BX 1347GLB2	1,145	0.299	4.19	38	26.5	82.2	57.05	$653
FM 2484B2F	1,063	0.300	3.72	39	31.5	83.6	57.55	$612
ST 4946GLB2*	1,007	0.315	4.06	37	32.1	82.7	57.45	$578
ST 4288B2F	1,000	0.265	4.07	39	32.1	83.7	57.55	$575
FM 9170B2F	978	0.292	3.71	38	32.2	81.9	57.35	$561
FM 1944GLB2	946	0.264	3.97	38	29.6	81.7	57.05	$540
ST 5458B2RF	923	0.302	4.59	35	27.5	80.7	55.75	$515
FM 1944GLB2-PV	889	0.277	4.06	39	31.4	82.9	57.45	$511
FM 1740B2F	868	0.307	3.98	36	28.5	81.5	56.75	$493
FM 2989GLB2	844	0.288	4.09	37	29.9	82.6	57.15	$482
ST 6448GLB2**	731	0.259	3.67	41	27.0	82.5	56.90	$416
FM 9180B2F	716	0.258	4.31	37	30.9	82.8	57.20	$409

Loan Value calculated from 2012 CCC Loan Schedule using uniform color grade of 21 and uniform leaf grade of 3.

*Tested as BX 1346GLB2 **Tested as BX 1348GLB2

This trial received approximately 13.21 inches of irrigation and rainfall throughout the growing season.

TEXAS A&M AGRILIFE EXTENSION

Phytogen Irrigated Innovation Trial
Seminole, TX - 2012

Cooperator: Froese Farms

Manda Anderson, Extension Agent - IPM, Gaines County

Planted: 21-May
Harvested: 8-November

Table 1. Harvest results from the Phytogen Irrigated Innovation Trial (3 replications), Froese Farms, Seminole, TX, 2012.

Variety	Lint Yield (lbs/A)	Percent Turnout	Mic	Length	Strength	Unif	Loan Value* (¢/lb)	Crop Value ($/A)
PHY 499 WRF	1354	0.342	3.5	1.14	32.5	82.5	0.5315	$720
PHY 499 WRF ACPB	1313	0.346	3.7	1.15	32.1	83.0	0.5387	$707
ST 5458 B2RF	1308	0.335	3.6	1.17	31.6	81.6	0.5247	$686
DP 1044 B2RF	1239	0.322	3.7	1.13	30.8	81.3	0.5365	$665
PHY 367 WRF	1210	0.316	3.7	1.15	31.7	82.5	0.5380	$651
PHY 375 WRF	1121	0.298	3.6	1.13	29.7	81.7	0.5288	$593

This trial received approximately 19.23 inches of irrigation and rainfall throughout the growing season.

Deltapine Irrigated FACT Trial
Seminole, TX - 2012

Cooperator: Tim Neufeld Farms

Manda Anderson, Extension Agent - IPM, Gaines County

Planted: 4-May
Harvested: 1-November

Table 1. Harvest results from the Phytogen Irrigated Innovation Trial (1 replications), Tim Neufeld Farms, Seminole, TX, 2012.

Entry	Brand	Product Name	Value / A ($/A)	Lint Yield (lbs/A)	Loan Value (¢/lb)	Staple	Length	Strength	Mic	Percent Lint Turnout	Unif
1	Monsanto	Experimental	$473.92	894	0.5300	33.6	1.05	28.9	4.8	38.0	79.4
2	Deltapine	DP 0912 B2RF	$472.04	882	0.5350	34.6	1.08	31.1	5.0	38.7	80.9
3	Deltapine	DP 1044 B2RF	$457.46	922	0.4960	33.6	1.05	28.5	5.4	37.1	79.9
4	Deltapine	DP 1359 B2RF *	$440.74	780	0.5650	35.8	1.12	31.6	4.8	38.6	81.3
5	Monsanto	Experimental	$438.32	787	0.5570	34.9	1.09	30.1	4.9	39.7	81.3
6	Deltapine	DP 174 RF	$432.94	844	0.5130	34.2	1.07	29.1	5.1	39.9	81.2
7	FiberMax	FM 1740 B2RF	$425.83	800	0.5320	34.9	1.09	28.5	5.2	39.1	82.3
8	Monsanto	Experimental	$420.36	792	0.5310	34.6	1.08	28.4	5.0	41.7	81.5
9	Monsanto	Experimental	$402.84	754	0.5340	34.9	1.09	30.9	5.0	41.3	81.0
10	Monsanto	Experimental	$398.50	775	0.5140	34.2	1.07	29.9	5.2	38.6	82.7
11	FiberMax	FM 9170 B2F	$380.92	671	0.5380	37.1	1.16	31.8	4.6	37.9	83.0
12	Deltapine	DP 1032 B2RF	$369.81	710	0.5210	34.9	1.09	27.4	5.3	38.7	82.9
13	Monsanto	Experimental	$345.54	623	0.5550	34.6	1.08	29.6	4.8	37.2	80.5
14	Deltapine	DP 1321 B2RF *	$293.70	519	0.5660	37.1	1.16	29.8	4.7	39.4	84.3
15	Monsanto	Experimental	$292.18	605	0.4830	33.0	1.03	28.4	5.5	40.5	80.4
16	Monsanto	Experimental	$289.79	542	0.5350	34.9	1.09	31.3	5.2	38.6	81.8
		TEST AVERAGE	**$395.93**	**744**	**0.5316**	**34.8**	**1.09**	**29.7**	**5.0**	**39.1**	**81.5**

Value Calculation based on $0.52/Lb(+/-) discounts/premiums from the 2011 USDA Loan Chart (Ranked by Value $/A). All plots were assigned a base color (31) and leaf grade (3).
Entries listed as "Monsanto" brand are experimental varieties, and not for sale.

* Indicates variety that has been advanced into commercial production. Key: 11R112B2R2 = DP 1321 B2RF; 11R124B2R2 = DP 1311 B2RF; 11R159B2R2 = DP 1359 B2RF

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and year whenever possible.

This trial received approximately 20.6 inches of irrigation and rainfall throughout the growing season.

Deltapine Limited Irrigated FACT Trial
Seagraves, TX - 2012

Cooperator: Marcus Crow Farms

Manda Anderson, Extension Agent - IPM, Gaines County

Planted: 30-May
Harvested: 20-November

Table 1. Harvest results from the Phytogen Irrigated Innovation Trial (1 replications), Marcus Crow Farms, Seagraves, TX, 2012.

Entry	Brand	Product Name	Value / A ($/A)	Lint Yield (lbs/A)	Loan Value (¢/lb)	Staple	Length	Strength	Mic	Percent Lint Turnout	Unif
1	FiberMax	FM 1740 B2RF	$288.89	539	0.5360	33.9	1.06	29.0	5.0	32.0	81.4
2	FiberMax	FM 9170 B2F	$286.04	506	0.5650	35.5	1.11	32.1	4.4	37.8	81.7
3	Monsanto	Experimental	$267.04	507	0.5265	34.6	1.08	27.7	5.0	32.4	78.1
4	Monsanto	Experimental	$233.54	442	0.5280	33.6	1.05	26.8	4.1	30.6	78.9
5	Monsanto	Experimental	$226.02	441	0.5120	33.3	1.04	27.7	4.7	30.1	79.8
6	Deltapine	DP 0912 B2RF	$201.56	389	0.5180	33.0	1.03	29.4	4.9	33.3	81.2
7	Deltapine	DP 1044 B2RF	$199.67	362	0.5520	34.9	1.09	30.3	4.4	32.1	79.6
8	Deltapine	DP 1359 B2RF *	$195.67	355	0.5515	34.9	1.09	29.8	4.2	28.4	79.1
9	Deltapine	DP 174 RF	$193.40	341	0.5665	35.5	1.11	30.3	4.2	30.0	82.2
10	Monsanto	Experimental	$187.93	366	0.5135	32.6	1.02	28.2	4.2	28.2	79.2
11	Monsanto	Experimental	$183.23	377	0.4865	31.4	0.98	27.4	5.0	31.3	79.8
12	Deltapine	DP 1321 B2RF *	$177.33	346	0.5130	33.6	1.05	29.2	4.3	29.9	79.9
13	Monsanto	Experimental	$175.03	315	0.5550	34.9	1.09	29.7	4.9	28.6	81.7
14	Deltapine	DP 1032 B2RF	$173.29	341	0.5085	32.6	1.02	27.7	4.8	29.5	78.7
15	Monsanto	Experimental	$166.69	294	0.5665	35.8	1.12	31.4	4.1	29.3	80.4
16	Monsanto	Experimental	$157.02	303	0.5180	33.3	1.04	29.8	4.7	25.3	81.3
		TEST AVERAGE	**$207.02**	**389**	**0.5323**	**34.0**	**1.06**	**29.2**	**4.5**	**30.6**	**80.2**

Value Calculation based on $0.52/Lb(+/-) discounts/premiums from the 2011 USDA Loan Chart (Ranked by Value $/A). All plots were assigned a base color (31) and leaf grade (3).
Entries listed as "Monsanto" brand are experimental varieties, and not for sale.

* Indicates variety that has been advanced into commercial production. Key: 11R112B2R2 = DP 1321 B2RF; 11R124B2R2 = DP 1311 B2RF; 11R159B2R2 = DP 1359 B2RF

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and year whenever possible.

This trial received approximately 5.95 inches of irrigation and rainfall throughout the growing season.

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