Supplemental Irrigation Cotton Variety Test

Daryl and Doyle Schniers Farm, 2013
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Summary:

Seventeen cotton varieties were compared under similar growing conditions to determine which cotton varieties consistently have higher yields and favorable fiber qualities. Deltapine 1044 B2RF, Phytogen X3122-40 WRF, Deltapine 1359 B2RF and Deltapine 1219 B2RF topped this test in Net Value ($/acre), of $1,216.81 per acre, $1,183.75 per acre, $1,164.28 per acre and $1,161.41 per acre, respectively. Producers should keep in mind that these results can change under different field conditions, soil fertility and irrigation practices, it is suggested that you look at the better cultivars on your farm to determine if they are compatible with your management style.

Objective:

Commercial cotton varieties require testing each year for determinations of consistency of yield and fiber quality. Through the use of a field test, a comparison is made of new varieties of cotton with varieties that have proven to be successful, long term yielders. Testing of said varieties within a geographic area of production is important to provide local producers with the latest information on old and view varieties.

Materials and Methods:

Seventeen cotton varieties were planted using a four row John Deere Maxi-Merge planter in a randomized complete block design using four planted row plots with four replications in the Wall farming community. The following is a list of materials and methods used in this test.

Planting Date: June 5, 2013
Seeding Rate: 105 seeds per 32 feet (3.3 seeds/ft. of row)

Row Width: 40” centers
Rows Planted: 4 rows x 32 ft. long, 4 replications
Planting Pattern: Every Row
Last Year’s Crop: Cotton
Irrigated: SSI
Soil Moisture: Excellent
Fertilizer: 100 lb. 11-52-0 pre-plant, 60 lbs. 32-0-0 through SSI during season
Insecticide: None
Fungicide: Topguard® for control of cotton root rot
Harvest Date: November 19, 2013

Variety	Plant Stand Avg. #/10 ft. 3rd True Leaf Stage
All-Tex Nitro 44 B2RF	30
Dyna-Gro 2570 B2RF	28
Dyna-Gro CT 13545 B2RF	29
PHY X3122-40 WRF	30
FiberMax 1944 GLB2	17
Stoneville 4946 GLB2	25
FiberMax 2989 GLB2	24
FiberMax 2484 B2F	28
Phytogen 565 WRF	22
Phytogen 367 WRF	29
NexGen 1511 B2RF	26
Phytogen 499 WRF	29
NexGen 5315 B2RF	24
Deltapine 1219 B2RF	29
Deltapine 1359 B2RF	31
Deltapine 1044 B2RF	28
Deltapine 1321 B2RF	28

Average plant populations were determined from two different locations within each plot at each growth stage.

Results and Discussion:

Table 1 contains the yield and economic and Table 2 contains the fiber quality analysis information for each of the seventeen cotton varieties evaluated in this test. Deltapine 1044 B2RF, Phytogen X3122-40 WRF, Deltapine 1359 B2RF and Deltapine 1219 B2RF topped this test in Net Value ($/acre), of $1,216.81 per acre, $1,183.75 per acre, $1,164.28 per acre and $1,161.41, respectively. Fiber quality was generally very good on all cotton varieties planted in this trial resulting in loan values of 0.5140 cents to 0.5487 cents per pound with PHY 367 WRF being the highest.

All cotton varieties were planted on 40 inch centers across the field and stripper-harvested using a John Deere four row cotton stripper. Each cotton variety consisted of 4 planted row plots replicated four times in a randomized complete block design. Seed cotton weights were determined by on-board load scales. Fiber quality analysis were determined by the Fiber & Biopolymer Research Institute in Lubbock.

Table 1. Yield and economic information from Daryl and Doyle Schnier's Supplemental Irrigated Cotton Variety Test, (Tom Green County, 2013)

Variety	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 ----------						
DP 1044B2RF	26.6	45.7	7344	1952	3353	0.5498	1,073.14	419.17	1,492.31	220.32	55.19	1,216.81	a
PHY X3122-40WRF	26.7	42.3	7375	1968	3120	0.5447	1,071.67	390.05	1,461.72	221.24	56.73	1,183.75	ab
DP 1359B2RF	23.9	39.1	8225	1966	3220	0.5415	1,064.36	402.51	1,466.87	246.76	55.83	1,164.28	abc
DP 1219B2RF	23.9	42.7	8004	1912	3422	0.5405	1,033.42	427.72	1,461.14	240.12	59.60	1,161.41	abc
FM 2484B2F	27.1	44.3	7119	1929	3153	0.5378	1,037.37	394.08	1,431.45	213.58	56.73	1,161.14	abc
PHY 499WRF	24.9	42.9	7643	1906	3277	0.5293	1,009.11	409.62	1,418.73	229.30	58.09	1,131.34	abcd
PHY 367WRF	26.3	42.7	7068	1858	3016	0.5487	1,019.51	377.02	1,396.53	212.05	57.22	1,127.26	abcd
ST 4946GLB2	26.7	44.6	6949	1857	3096	0.5392	1,001.17	387.03	1,388.20	208.48	56.17	1,123.56	abcd
FM 2989GLB2	27.7	47.5	6616	1834	3144	0.5300	971.99	393.06	1,365.05	198.47	56.17	1,110.40	abcd
NG 1511B2RF	27.2	41.2	6779	1847	2794	0.5417	1,000.51	349.29	1,349.79	203.37	57.57	1,088.86	abcd
DG 2570B2RF	27.1	43.9	6711	1816	2946	0.5320	965.99	368.19	1,334.19	201.33	56.17	1,076.69	abcd
DG CT13545B2Rf	23.8	42.2	7368	1752	3110	0.5430	951.55	388.79	1,340.34	221.03	57.60	1,061.70	bcd
DP 1321B2RF	24.8	34.6	7790	1935	2693	0.5142	995.10	336.64	1,331.73	233.69	57.17	1,040.88	bcd
NG 5315B2RF	26.5	41.2	6704	1777	2759	0.5325	946.19	344.88	1,291.07	201.12	56.26	1,033.69	cd
PHY 565WRF	25.7	41.2	6789	1748	2794	0.5337	932.60	349.28	1,281.88	203.68	54.17	1,024.03	cd
FM 1944GLB2	27.6	45.5	6183	1706	2816	0.5282	901.30	351.96	1,253.26	185.50	58.00	1,009.75	d
All-Tex Nitro-44 B2RF	23.6	41.6	6187	1461	2574	0.5362	783.50	321.77	1,105.27	185.61	54.81	864.85	e
Test average	**25.9**	**42.5**	**7109**	**1837**	**3017**	**0.5366**	**985.79**	**377.12**	**1,362.91**	**213.27**	**56.68**	**1,092.96**	
CV, %	**2.6**	**2.7**	**7.4**	**7.6**	**7.6**	**4.8**	**7.6**	**7.6**	**7.6**	**7.4**	**--**	**7.9**	
OSL	**<0.0001**	**<0.0001**	**0.0007**	**0.0148**	**0.0014**	**0.9856**	**0.0066**	**0.0014**	**0.0095**	**0.0007**	**--**	**0.0063**	
LSD	**1.1**	**1.9**	**870**	**231**	**380**	**NS**	**123.85**	**47.51**	**171.30**	**26.10**	**--**	**144.49**	

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 2. Fiber quality analysis from Daryl and Doyle Schnier's Supplemental Irrigated Cotton Variety Test, (Tom Green County, 2013)

Variety	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32nds inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
DP 1044B2RF	4.4	36.7	82.0	30.9	11.1	4.0	75.0	7.6	4.0	1.0
PHY X3122-40WRF	4.4	38.2	82.5	31.3	8.7	3.7	71.5	7.6	4.7	1.0
DP 1359B2RF	4.3	38.0	80.5	33.2	9.1	3.0	76.2	7.7	4.0	1.0
DP 1219B2RF	4.2	38.1	80.6	32.7	9.3	2.3	76.7	7.5	3.3	1.0
FM 2484B2F	3.8	39.5	81.9	33.3	7.6	3.7	75.9	6.8	4.0	1.0
PHY 499WRF	4.7	37.1	82.5	31.2	11.2	4.0	72.8	7.4	4.0	1.0
PHY 367WRF	4.3	36.7	82.3	32.1	9.7	3.7	73.3	7.8	4.0	1.0
ST 4946GLB2	4.6	38.0	82.8	33.5	9.3	3.7	74.6	7.4	4.0	1.0
FM 2989GLB2	4.2	38.5	81.4	33.3	7.6	3.0	75.5	6.9	4.0	1.0
NG 1511B2RF	4.9	36.3	82.0	33.2	10.9	3.7	72.9	7.5	4.0	1.0
DG 2570B2RF	4.3	36.1	82.1	31.9	10.2	3.0	75.5	7.7	4.0	1.0
DG CT13545B2RF	4.5	37.4	81.0	36.1	8.4	3.0	75.9	7.5	3.7	1.0
DP 1321B2RF	4.9	36.6	82.2	31.6	11.7	4.3	73.1	7.5	4.0	1.0
NG 5315B2RF	3.9	37.7	82.5	29.4	10.6	2.7	78.3	8.3	3.0	1.0
PHY 565WRF	4.4	37.5	82.4	33.4	10.5	4.7	72.9	7.8	4.0	1.0
FM 1944GLB2	4.4	38.5	82.1	33.4	8.1	3.7	75.5	6.5	4.3	1.0
All-Tex Nitro-44 B2RF	4.1	40.0	83.5	36.6	8.9	6.3	69.0	7.4	5.0	1.0
Test average	**4.4**	**37.7**	**82.0**	**32.8**	**9.6**	**3.7**	**74.4**	**7.5**	**4.0**	**1.0**
CV, %	**4.1**	**1.6**	**0.6**	**3.7**	**6.2**	**12.6**	**1.6**	**2.7**	**--**	**--**
OSL	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**--**	**--**
LSD	**0.3**	**1.0**	**0.8**	**2.0**	**1.0**	**0.8**	**1.9**	**0.3**	**--**	**--**
CV - coefficient of variation.										
OSL - observed significance level, or probability of a greater F value.										
LSD - least significant difference at the 0.05 level.										

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Bayer CropSciences who provided the FiberMax 2484 B2F, FiberMax 1944 GLB2 and FiberMax 2989 GLB2

Dow AgroScience who provided Phytogen 565 WRF, Phytogen 499 WRF, Phytogen X3122-40 WRF and Phytogen 367 WRF

Stoneville Pedigreed Seed owned by Bayer CropScience who provided Stoneville 4946 GLB2

Delta and Pine Land Company who provided Deltapine 1044 B2RF, Deltapine 1321 B2RF, Deltapine 1219 B2RF and Deltapine 1359 B2RF

Americot Inc. who provided NexGen 5315 B2RF and NexGen 1511 B2RF

Crop Production Services who provided Dyna-Gro CT 13545 B2RF and Dyna-Gro 2570 B2RF

All-Tex Seed Company owned by Crop Production Services who provided All-Tex Nitro 44 B2RF