TEXAS GULF COAST MONSTER COTTON VARIETY TRIAL RESULTS

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Abstract

Variety selection is the most important decision made during the year. Unlike herbicide or insecticide decisions that can be changed during the season to address specific conditions and pest, variety selection is made only once, and variety selection dictates the management of that field for the entire season. In 2012, two monster cotton variety trials were planted in the Texas Gulf Coast Region. The objective of these trials is to assist Gulf Coast cotton producers in the selection of varieties for the upcoming season. Each year, these two locations contain 40-50 varieties, hence the name monster variety trial (MVT). These two MVT were located in Nueces and Matagorda counties. At the end of the season, statistical analyses were conducted on lint yield, gin turnout, fiber quality parameters, and loan value.

Introduction

Variety selection is the most important decision made during the year. Unlike herbicide or insecticide decisions that can be changed during the season to address specific conditions and pests, variety selection is made only once, and variety selection dictates the management of that field for the entire season. To assist cotton producers with variety selection, two MVT were planted in Nueces and Matagorda counties which are located in the Texas Gulf Coast Region. Each year, these two locations contain 40-50 varieties, hence the name MVT. Data featured in the two tables include statistical analyses of lint yield, gin turnout, fiber quality parameters (micronaire, length, strength, and uniformity, and loan value. Values reported for any two varieties that differ by more than the LSD value are expected to be different in 95 of every 100 comparisons. Varieties that are statistically different from one another will not have the same letter next to the corresponding number value in the column. The coefficient of variation (CV) is reported for each of the variables measured at both locations. The CV is a measure of the uniformity of the test location (soil uniformity, moisture, drainage, disease, etc.). Lower coefficients (<10) of variation are desirable. Seed cotton samples from both trials were ginned on a research gin with no lint cleaner. Consequently, our gin turnout percentages will always be higher when compared to gin turnout percentages from a commercial gin. Lint samples are sent to the Texas Tech Fiber and Biopolymer Institute for fiber measurements.

Objectives

1. Assist cotton producers in the selection of varieties for the upcoming season.
2. Assist seed companies in evaluating the performance of their varieties under gulf coast growing conditions.

Materials/Methods

Nueces Location

The Nueces MVT was planted on March 13, 2012 on the Texas A&M AgriLife Research and Extension Center at Corpus Christi, Texas. Forty varieties were entered in the trial. Stand emergence was observed on March 18, 2012. Soil type was a Victoria clay. Seeding rate was 52,000 seed per acre. Row spacing was 38 inches. Plot sizes were 2 rows by 35 feet in length. Supplemental water requirements during the season were provided by drip irrigation. Experimental design was a randomized complete block. Number of replications was four. Harvest date was July 20, 2012. Harvest method was with a one row machine picker (Table 1).

Matagorda Location

The Matagorda MVT was planted on April 26, 2012 on the Bill and Mike Hanson farm at Tin Top, Texas. Fifty varieties were entered in the trial. Stand emergence was observed on April 30, 2012. Soil type was a Laewest clay. Seeding rate was 52,000 seed per acre. Row spacing was 40 inches. No irrigation was provided. Plot sizes were 2 rows by 35 feet in length. Experimental design was a randomized complete block. Number of replications was four. Harvest date was September 4, 2012. Harvest method was with a one row machine picker (Table 2).

Results

For the Nueces MVT the average lint yield per acre, percent gin turnout, micronaire value, length (in.), strength (g/tex), uniformity, and loan values (¢/lb) were 1009, 43.62, 4.96, 1.07, 31.36, 83.06, and 50.71, respectively. PHY 499WRF produced the highest lint yield per acre (1193), percent gin turnout (45.6), and uniformity value (84.78). All-Tex ATXCR109293B2RF produced the longest length value of 1.17 inches. PHY 755WRF produced the highest strength value of 36.80 g/tex. All-Tex ATNitro44B2RF produced the highest loan value of 54.10 ¢/lb (Table 1). None of the varieties were in the premium micronaire range of 3.7 – 4.2. Twenty of the forty varieties entered were in the discount range of 5.0 or greater.

For the Matagorda MVT the average lint yield per acre, percent gin turnout, micronaire value, length (in.), strength (g/tex), uniformity, and loan values (¢/lb) were 1384, 40.34, 4.81, 1.17, 33.08, 84.8, and 53.19, respectively. PHY 499WRF was top yielding variety at 1,820 lint pounds per acre. DP1252B2RF produced the highest gin turnout at 44.9%. PHY 755WRF and All-Tex ATXCR109293B2RF produced the longest length value at 1.27 inches. PHY 755WRF produced the highest values for strength, uniformity, and loan values at 37.48 g/tex, 87.0, and 54.29 ¢/lb (Table 2). Ten of the fifty varieties entered were in the discount range of 5.0 or greater.

Acknowledgements

Appreciation is expressed to Bill and Mike Hansen for providing the land for the Matagorda MVT location, the Texas Department of Agriculture for providing funds for the fiber analyses, and to the participating seed companies and Cotton Incorporated for providing the seed and financial support.

Table 1. Variety trial results for the nueces monster cotton variety trial, 2012.

Variety	Lint (lbs/acre)		Turnout (%)		Micronaire		Length (inches)		Strength (g/tex)		Uniformity		Loan Value (¢/lb)	
PHY 499 WRF	1193	a	45.6	a-d	5.13	b-g	1.06	k-o	32.63	b-h	84.78	a	50.14	g-m
ATNITRO 44B2RF	1158	ab	42.3	p-t	4.28	q	1.14	abc	34.00	b	84.50	abc	54.10	a
PHY 367 WRF	1114	abc	44.6	b-k	4.63	m-p	1.06	j-n	31.60	e-o	83.33	a-j	52.23	a-h
HQ 210 CT	1101	a-d	41.3	tu	5.05	c-j	1.02	pq	31.23	g-o	82.45	g-n	48.03	m-p
FM 2989 GLB2	1101	a-d	41.7	r-u	5.10	b-h	1.07	g-m	30.25	m-t	81.25	mn	50.19	f-m
AT EPIC RF	1087	a-e	44.3	e-l	4.98	e-k	1.04	l-p	30.58	k-r	84.30	a-d	49.86	i-m
PHY 375 WRF	1087	a-e	44.1	h-m	4.93	f-l	1.05	l-p	30.35	l-s	83.05	b-l	50.40	e-l
DP 1050 B2RF	1084	a-e	45.4	a-f	5.10	b-h	1.07	h-m	30.13	o-t	82.65	f-m	50.54	d-l
DP 1219 B2RF	1071	a-f	43.0	l-q	4.95	f-l	1.10	d-h	33.18	bcd	83.18	b-j	52.29	a-g
AU 222	1068	a-g	42.2	p-u	5.05	c-j	1.09	e-k	31.68	d-o	81.60	k-n	50.95	c-j
ATXCR103233B2RF	1065	a-g	44.4	d-k	4.85	h-m	1.10	e-j	30.30	l-s	82.85	d-l	52.60	a-e
ST 5458 B2RF	1061	a-g	43.4	k-p	5.23	a-e	1.07	g-m	30.38	l-s	82.83	d-l	49.76	i-m
FM 1845 LLB2	1058	a-g	41.0	u	4.95	f-l	1.13	bcd	33.48	bc	84.10	a-f	52.83	a-d
FM 1740 B2F	1056	a-g	43.5	j-p	4.88	g-m	1.02	opq	28.93	st	81.80	j-n	49.14	j-m
ATX 10WSCV340	1050	a-g	44.1	h-m	4.98	e-k	1.06	k-o	31.13	h-o	82.93	d-l	50.46	e-l
ATX 10WSCV447	1045	a-g	42.6	o-s	5.05	c-j	1.06	i-n	32.28	c-j	83.08	b-l	50.73	c-k
ST 4145 LLB2	1021	b-g	41.6	stu	5.05	c-j	1.05	l-p	30.23	n-t	83.00	c-l	49.28	j-m
ATX 9VCCV1020	1007	b-h	44.9	a-i	5.10	b-h	1.03	m-p	29.25	rst	81.55	lmn	49.24	j-m
DP1252B2RF	1006	b-h	46.1	a	5.23	a-e	1.07	h-m	30.75	j-r	83.50	a-i	49.98	h-m

AM1550B2RF	1003	b-h	44.2	f-m	5.15	b-f	1.01	pq	28.70	t	82.75	e-m	46.41	op
AM1511 B2RF	1002	b-h	45.3	a-g	5.25	a-d	1.05	l-p	31.80	d-m	84.23	a-e	48.73	j-n
ATX 784381RF	1002	b-h	44.5	c-k	4.38	pq	1.11	c-f	31.70	d-n	83.75	a-h	53.71	ab
DP1044B2RF	995	b-h	42.3	p-t	5.18	b-f	1.04	l-p	30.23	n-t	82.83	d-l	48.40	l-o
ATXCR109293B2RF	995	b-h	45.7	abc	4.88	g-m	1.17	a	32.70	b-g	83.95	a-g	53.39	ab
DP1032B2RF	993	c-h	44.9	a-i	5.08	c-i	1.11	cde	31.38	f-o	84.13	a-f	51.68	b-i
DP0935B2RF	992	c-h	44.1	g-m	5.25	a-d	1.02	pq	28.88	st	82.60	f-m	46.68	nop
FM1944GLB2	990	c-h	42.8	n-s	5.05	c-j	1.07	g-m	29.35	q-t	82.38	h-n	50.93	c-j
ATLA122	990	c-h	45.8	ab	5.00	d-j	1.03	n-q	30.25	m-t	82.05	i-n	49.06	j-m
PHY565WRF	989	c-h	42.9	m-r	4.83	i-n	1.06	k-o	31.78	d-n	83.13	b-k	52.55	a-e
HQ212CT	971	c-h	41.3	tu	5.35	ab	0.99	q	31.00	i-p	81.05	n	45.85	p
AT7A21	959	c-h	43.8	i-o	4.80	j-o	1.07	f-l	32.90	b-f	83.40	a-i	52.45	a-f
ATX91239B2RF	955	c-h	44.4	d-k	4.98	e-k	1.10	d-g	30.85	i-q	82.63	f-m	51.81	a-i
AU103	947	d-i	44.0	i-n	4.95	f-l	1.09	e-k	32.33	c-i	82.50	g-n	52.03	a-i
ATX9CR253 B2RF	941	d-i	44.1	h-m	5.30	abc	1.04	l-p	32.08	c-k	82.78	d-m	48.58	k-o
FM8270GLB2	926	e-i	42.0	q-u	4.55	op	1.10	d-i	33.13	b-e	83.43	a-i	52.88	abc
DP1133B2RF	918	f-i	45.5	a-e	5.45	a	1.07	h-m	31.83	d-l	83.45	a-i	48.89	j-n
ATX 91139B2RF	917	f-i	45.3	a-h	4.70	l-o	1.07	g-l	29.53	p-t	83.05	b-l	51.66	b-i
PHY 440W	908	f-i	42.7	o-s	4.80	j-o	1.05	l-p	32.13	c-k	83.28	a-j	50.64	c-l
DP1048B2RF	906	ghi	44.7	b-j	4.88	g-m	1.09	e-k	31.00	i-p	82.98	c-l	52.34	a-g
ATX981221501B2F	850	hi	43.7	i-o	4.73	k-o	1.11	c-f	33.13	b-e	84.08	a-f	53.53	ab

PHY755WRF	787	i	39.1	v	4.58	nop	1.16	ab	36.80	a	84.58	ab	54.08	a
Mean	**1009**		**43.62**		**4.96**		**1.07**		**31.36**		**83.06**		**50.71**	
P>F	0.0045		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001	
LSD (P=.05)	163.97		1.266		0.257		0.036		1.557		1.526		2.2907	
STD DEV	117.113		0.904		0.183		0.0257		1.112		1.09		1.6362	
CV%	11.61		2.07		3.7		2.4		3.55		1.31		3.23	

Table 2. Variety trial results for the matagorda monster cotton variety trial, 2012.

Variety	**Lint (lbs/acre)**		**Turnout (%)**		**Micronaire**		**Length (inches)**		**Strength (g/tex)**		**Uniformity**		**Loan Value (¢/lb)**	
PHY499WRF	1820	a	43.8	ab	5.18	abc	1.15	k-q	33.68	c-j	84.93	c-k	51.51	klm
BX1348GLB2	1726	ab	41.3	e-i	4.78	g-n	1.21	bcd	33.15	e-m	83.83	i-l	53.98	a-e
DP1219B2RF	1666	abc	41.6	d-h	4.55	n-r	1.16	h-n	34.30	b-g	83.90	h-l	54.01	a-d
AT LA122cv	1657	abc	40.8	f-l	4.58	m-r	1.17	f-l	31.83	m-q	84.98	c-k	54.04	a-d
FM1944GLB2	1596	bcd	40.1	j-n	4.80	g-m	1.18	d-i	33.23	d-m	83.60	jkl	53.94	a-e
DP1252B2RF	1596	bcd	44.9	a	5.08	b-f	1.16	i-o	32.13	j-q	85.50	a-h	52.39	g-l
PX4339CB06WRF	1580	bcd	41.4	e-i	4.85	f-l	1.18	d-i	32.30	j-q	84.13	g-l	53.39	a-g
PHY565WRF	1568	b-e	39.5	m-r	4.75	g-n	1.18	e-k	35.68	b	86.03	abc	53.65	a-f
ATX10WSCV340	1552	c-f	41.3	e-i	4.48	p-s	1.22	bc	33.18	e-m	85.05	b-k	54.06	abc
DP1050B2RF	1551	c-f	44.3	a	4.85	f-l	1.17	f-k	32.28	j-q	85.38	a-i	53.51	a-g
DP1048B2RF	1536	c-g	42.7	bc	4.65	k-q	1.18	e-j	31.75	m-q	84.73	c-k	54.01	a-d
PX433915WRF	1523	c-h	41.2	e-i	4.88	e-k	1.18	e-i	32.48	i-q	83.68	jkl	53.26	a-g

DP1133B2RF	1523	c-h	42.6	cd	5.13	a-d	1.18	e-j	34.28	b-h	86.68	ab	51.68	i-m
ATX10WSCV447	1514	c-h	40.0	k-o	5.08	b-f	1.17	f-k	34.03	c-i	85.75	a-g	52.45	g-l
ATX91239B2RF	1504	c-i	40.4	i-m	4.68	j-q	1.21	b-e	32.38	j-q	84.28	d-l	53.39	a-g
ATX9VCCV1020cv	1491	d-i	41.5	e-i	4.98	c-g	1.17	f-m	32.00	k-q	84.38	c-l	52.81	e-i
ATX9CR253B2RF	1491	d-i	41.7	c-g	5.33	a	1.14	l-q	33.50	c-k	85.40	a-i	50.99	m
PHY440W	1475	d-j	39.8	l-q	4.88	e-k	1.13	n-r	33.20	d-m	84.73	c-k	53.45	a-g
PX433906WRF	1459	d-k	41.5	d-h	4.93	d-i	1.19	d-i	32.73	h-p	85.93	a-d	53.56	a-g
ATX91139B2RF	1454	d-k	41.7	c-h	4.45	qrs	1.19	c-g	31.45	o-r	84.83	c-k	54.03	a-d
ATNITRO44B2RF	1445	d-k	39.9	k-o	4.45	qrs	1.23	b	33.53	c-k	84.95	c-k	54.09	abc
PX532211WRF	1411	e-l	40.0	k-n	4.63	l-q	1.21	bcd	31.33	pqr	84.43	c-l	53.98	a-e
ST5458B2RF	1400	f-m	40.6	h-m	5.13	a-d	1.17	f-l	33.30	d-m	84.40	c-l	51.73	h-m
FM8270GLB2	1398	f-m	38.2	st	4.35	rst	1.20	c-f	35.05	bc	85.50	a-h	54.23	ab
AT7A21cv	1392	f-n	40.8	f-l	4.73	h-o	1.19	c-h	32.98	f-o	85.38	a-i	54.10	abc
ATX784381RF	1380	g-n	41.0	f-k	4.20	t	1.18	e-j	32.33	j-q	82.93	l	54.00	a-d
DP1032B2RF	1370	h-o	41.9	c-g	4.80	g-m	1.17	g-m	33.43	d-l	84.38	c-l	53.45	a-g
ST5445LLB2	1367	h-o	40.8	g-l	5.23	ab	1.21	b-e	34.75	bcd	85.83	a-f	51.33	lm
ATXCR103233B2RF	1365	h-p	42.2	cde	4.80	g-m	1.20	c-f	31.90	l-q	84.35	d-l	53.41	a-g
FM835LLB2	1344	i-q	37.6	tuv	4.50	o-s	1.19	c-g	34.03	c-i	85.85	a-e	54.16	ab
FM1845LLB2	1340	i-r	38.5	rst	4.85	f-l	1.18	e-j	34.65	b-e	84.18	f-l	52.88	d-h
DP1044B2RF	1317	j-s	38.9	o-s	4.70	i-p	1.10	r-u	31.58	n-q	83.60	jkl	53.43	a-g
FM1740B2F	1302	k-t	41.2	e-j	4.98	c-g	1.16	i-p	33.03	f-n	85.63	a-g	52.41	g-l

ATEPICRF	1276	l-u	41.7	c-g	4.73	h-o	1.11	r-u	33.20	d-m	84.63	c-k	53.24	a-g
PHY375WRF	1266	l-u	39.8	l-q	4.80	g-m	1.12	q-t	31.03	qr	84.98	c-k	53.06	b-g
ATXCR109293B2RF	1256	l-u	41.5	d-h	4.68	j-q	1.27	a	34.18	b-h	84.93	c-k	53.55	a-g
AU103	1254	l-u	40.9	f-l	4.90	d-j	1.19	c-g	34.18	b-h	84.83	c-k	52.94	c-g
FM9058F	1236	m-u	40.0	k-o	4.63	l-q	1.19	c-g	33.63	c-j	84.78	c-k	54.09	abc
HQ212CT	1228	n-u	41.9	c-f	4.95	c-h	1.09	tu	32.00	k-q	83.45	kl	52.40	g-l
AU222	1228	n-u	40.8	f-l	4.83	g-l	1.18	e-j	34.48	b-f	84.20	e-l	53.44	a-g
AM1550B2RF	1214	o-u	38.8	p-s	4.95	c-h	1.08	u	29.93	r	84.28	d-l	52.54	f-k
ATX981221501B2F	1206	o-u	36.9	vw	4.78	g-n	1.20	c-g	34.53	b-f	85.50	a-h	54.14	ab
AM1511B2RF	1202	p-u	38.8	qrs	5.28	ab	1.09	tu	31.90	l-q	84.83	c-k	50.68	m
BX1346GLB2	1179	q-u	39.1	n-s	4.85	f-l	1.14	m-q	33.58	c-j	84.93	c-k	54.06	abc
PHY367WRF	1177	r-u	39.7	m-q	4.68	j-q	1.13	n-r	32.75	g-p	84.65	c-k	53.99	a-e
DP0935B2RF	1167	stu	41.4	e-i	4.88	e-k	1.13	p-s	31.80	m-q	84.10	g-l	52.70	f-j
ST4145LLB2	1144	tu	39.9	k-p	5.18	abc	1.13	o-r	30.98	qr	85.13	b-j	51.63	j-m
HQ210CT	1135	u	39.2	n-s	5.10	a-e	1.10	stu	33.25	d-m	83.83	i-l	51.14	m
FM2989GLB2	1116	u	41.6	d-h	4.75	g-n	1.15	j-q	34.03	c-i	85.13	b-j	54.13	ab
PHY 755WRF	834	v	38.1	stu	4.30	st	1.27	a	37.48	a	87.00	a	54.29	a
Mean	**1384.47**		**40.34**		**4.81**		**1.17**		**33.08**		**84.8**		**53.19**	
P>F	0.0001		0.0001		0.0001		0.0001		0.0001		0.0014		0.0001	
LSD (P=.05)	165.09		1.105		0.226		0.0323		1.573		1.664		1.1835	
STD DEV	117.92		0.79		0.162		0.0231		1.123		1.188		0.8453	

CV%	8.52	1.96	3.36	1.97	3.4	1.4	1.59