2013 TEXAS UPPER COAST – REPLICATED AGRONOMIC COTTON EVALUATION (RACE) – TRIAL SUMMARY

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Abstract

Texas A&M AgriLife Extension Service conducts over 20 large-plot replicated cotton variety trials across the southern, eastern and central portions of Texas each year. The objective of these trials are to compare yield and lint quality of stacked-gene Bollgard II and WideStrike Roundup Ready Flex cultivars grown in large plot replicated trials on producer-cooperator fields across this region. Because of the various environmental conditions and site locations that these trials are conducted annually, these trials produce a wealth of data on variety performance. These variety results are made available to local producers throughout these regions of the state. Due to limited space, a summary of 4-6 county cotton variety trials conducted in 2012 across the Coastal Bend Region of Texas will be summarized. All the trial sites have three replicates with plot sizes exceeding 0.25 acres. These trials are managed by the producer/cooperator and thus represent true, on-farm management practices.

Introduction

Cultivar selection is the most important decision made by the cotton (Gossypium hirsutum L.) grower; however, with the proliferation of transgenic technology, new seed treatments for both early season insects and disease management, and new genetics, cultivar selection has become even more critical, and one of the most expensive inputs of the production enterprise. Unlike herbicide or insecticide decisions that can be changed during the season to address specific conditions and pests, cultivar selection is made only once and that selection dictates field management for the entire season.

Because of the rapid introduction of new cultivars/technologies into the marketplace today, growers and practitioners are forced to make cultivar selection decisions with less information than in the past. In most cases, decisions are based upon single-year information from academic/public sources, and sometimes the only information available is derived from seed company reports. Due to the rapid turnover of cultivars (three to four year life-cycle), multiple-year testing has virtually become a “thing-of-the-past.”

Consequently, an on-farm, large-plot cultivar testing program was developed by Texas A&M AgriLife Extension cotton agronomists with the goal of providing growers and practitioners with information necessary in making cultivar decisions. Agronomic management of weed, insect and plant growth regulator use and harvest operations will not be reflective of the commercial.

Texas producers planted 6.6 million acres in 2012 which was about 500,000 acres less than 2012. In the Lower Rio Grand Valley, Coastal Bend and Blackland Regions of Texas, 1.1 million acres of cotton were planted in 2012, which was similar to 2011 acres. Transgenic varieties accounted for over 98% of the state acreage in 2012. According to the USDA-Agricultural Marketing Service "Cotton Varieties Planted 2012 Crop" survey for the Corpus Christi Classing Office, the most popular varieties included in these trials for that region that they track were: PHY 499WRF – 9.1 %, PHY 375WRF – 8.4 %, DP 1044B2F – 14.9%, DP 1048B2F – 2.8%, and ST 5458B2F – 1.4%.

Materials and Methods

Up to twelve cultivars were planted at each location and cultivar selections were determined with input from grower cooperators/committees, Extension faculty, and seed industry representatives. Only the ten varieties, that were common in each of the five locations, were used for the analysis of this poster. Variety entries consisted of Bollgard II and WideStrike varieties with glyphosate tolerance. Ft. Bend and Colorado county locations were irrigated.

Plot dimensions ranged from 0.5 to 1.2 acres in size, depending upon the location. Studies were arranged in a randomized complete block design with three replications (Table 1). All trials were machine harvested with grower pickers. Plot weights were determined using a weighing boll buggy equipped with integral electronic scales. Sub-samples from each plot were ginned on a Continental 10 saw gin with no lint cleaner (which produces a higher lint turnout percent than a commercial gin). Consequently, higher turnouts equate to lint yields which were generally higher than area-wide commercial yields. Lint quality was quantified by a high volume instrument (HVI) at the Fiber and Biopolymer Research Institute at Texas Tech University in Lubbock, Texas. Additionally, all data were standardized to a color grade and leaf of 41 – 4. Lint value per pound was calculated using Cotton Incorporated's 2012 Cotton Loan Calculator. Statistical analysis of data were conducted using Agricultural Research Manager 8, using LSD (P=0.05).

Table 1. County the RACE was located in, Cooperator, Planting and Harvest Date, Irrigated or not, and plot size.

County	Cooperator	Planting Date	Harvest Date	Row Spacing (inches)	Plot Dimensions	Irrigated or Dryland	Area harvested /plot
Jackson	Bruce White	Apr 15	Sep 4	40	6 rows x 1750ft	Dryland	0.80
Matagorda	Hansen Farms	Apr 2	Sep 2	40	6 rows x 865 ft	Dryland	0.40
Wharton	Kresta Farms	Apr 16	Aug 27	40	6 rows x 1450 ft	Dryland	0.65
Fort Bend	Alan and Lisa Stasney	Apr 20	Sep 22	36	12 rows x 1500 ft	Irrigated	1.24
Colorado	Mahalitc Farms	Apr 2	Sep 9	36	12 rows x 1500 ft	Irrigated	1.24

Results and Discussion

Mean variety yield across all locations ranged from 1204 to 1059 lbs/ac for PHY 499WRF and AT Nitro 44B2RF, respectively (Table 2). Overall mean yield of all varieties across all five locations was 1116 lbs/ac. Mean turnout for each variety across all locations ranged from 40.1 to 44.5 for All-Tex (AT) Nitro 44B2RF and NexGen (NG) 1511B2RF, respectively. Loan value ranged from 50.45 to 53.72 cents/lb for NG 1511B2F and AT Nitro 44B2RF, respectively. Mean lint value for each variety across all locations ranged from 622 to 558 $/ac for PHY 499WRF and AT Nitro 44B2F, respectively. Mean location yields ranged from 1247 to 1028 lbs/ac for the Colorado and Fort Bend Co RACE trials, respectively (Tables 3-7).

Mean yields across locations were very comparable in 2013. Yields ranged from 1028 to 1247 lbs/ac for the two irrigated locations Fort Bend and Colorado Co, respectively. Yield for the dryland locations ranged from 1068 to 1172 for Wharton and Jackson Co, respectively. Mean loan value for the two irrigated sites were 0.5312 and 0.5372 cents/lb while mean yield for the three dryland sites ranged from 0.5101 to 0.5319 cents/lb.

Table 2. Multi-County Average Yield, Turnout, Loan Value and Lint Value.

Variety	Yield (lbs/acre)	Turnout %	Loan Value (¢/lbs)	Lint Value ($/Ac)
AM 1511B2RF	1788	44.2	51.15	902
PHY 499WRF	1204	43.6	51.60	622
DP 1219B2F	1160	42.2	52.66	617
NG 1511B2RF	1137	44.5	50.45	561
DP 1044B2F	1131	41.8	53.38	601
ST 4946GLB2	1121	42.2	52.56	586
PHY 339WRF	1121	43.1	53.25	597
FM 1944GLB2	1120	41.0	53.12	596
ST 6448GLB2	1092	41.5	52.50	575
CL 3787B2RF	1064	43.6	52.49	558
CT 13125B2RF	1063	42.3	53.07	571
AT Nitro 44B2RF	1059	40.1	53.72	570
Mean	1116	42.4	52.80	587

Table 3. Jackson County Average Yield, Turnout, Loan Value and Lint Value.

Variety	Lint (lbs/acre)	Turnout %	Loan Value (¢/lb)	Lint Value ($/acre)
NG 1511B2RF	1260	43.5	52.10	654
PHY 499WRF	1239	43.0	52.55	649
DP 1219B2F	1223	42.5	52.47	644
PHY 339WRF	1220	42.4	53.53	653
FM 1944GLB2	1213	40.2	53.77	652
DP 1044B2F	1172	41.4	53.55	627
ST 4946GLB2	1163	42.5	53.13	618
CT 13125B2RF	1129	42.5	53.72	607
AT Nitro 44B2RF	1127	39.3	53.72	606
CG 3787B2RF	1101	41.5	53.83	593
ST 6448GLB2	1045	40.1	52.68	553
Mean	1172	41.7	53.19	623

Table 4. Matagorda County Average Yield, Turnout, Loan Value and Lint Value.

Variety	Yield (lbs/acre)	Turnout %	Loan Value (¢/lbs)	Lint Value ($/Ac)
ST 4946GLB2	1192	42.1	51.52	614
DP 1219B2F	1153	42.3	51.97	599
DP 1044B2F	1136	41.3	52.18	593
NG 1511B2RF	1136	44.0	46.50	528
PHY 499WRF	1131	44.0	48.17	545
CL 3787B2RF	1127	44.5	49.30	556
CT 13125B2RF	1110	42.7	53.42	593
PHY 339WRF	1071	42.7	51.78	556
AT Nitro 44B2RF	1065	41.1	53.70	572
FM 1944GLB2	1045	40.8	52.38	548
ST 6448GLB2	1027	41.9	50.75	521
Mean	1117	42.6	51.01	569

Table 5. Wharton County Average Yield, Turnout, Loan Value and Lint Value.

Variety	Yield (lbs/acre)	Turnout %	Loan Value (¢/lbs)	Lint Value ($/acre)
PHY 499WRF	1166	44.9	51.20	600
ST 4946GLB2	1108	41.9	51.95	567
ST 6448GLB2	1107	41.9	53.27	593
NG 1511B2RF	1102	44.5	53.69	540
DP 1044B2F	1097	41.2	53.64	579
PHY 339WRF	1080	43.6	53.58	578
DP 1219B2F	1061	42.4	51.28	570
CL 3787B2RF	1052	43.1	53.13	562
FM 1944GLB2	1048	42.0	52.27	551
CT 13125B2RF	977	42.9	50.50	523
AT Nitro 44B2RF	950	40.1	53.37	511
Mean	1068	42.6	52.53	561

Table 6. Fort Bend County Average Yield, Turnout, Loan Value and Lint Value.

Variety	Yield (lbs/acre)	Turnout %	Loan Value (¢/lbs)	Lint Value ($/Ac)
PHY 499WRF	1102	44.2	53.20	586
FM 1944GLB2	1100	42.4	53.43	588
ST 6448GLB2	1054	43.1	52.08	548
NG 1511B2RF	1051	45.9	49.50	520
DP 1219B2F	1036	43.4	53.65	556
DP 1044B2F	1030	42.9	53.60	552
ST 4946GLB2	1020	42.3	53.65	547
PHY 339WRF	1007	44.6	53.75	541
AT Nitro 44B2RF	1002	40.5	53.88	540
CL 3787B2RF	974	45.1	53.68	523
CT 13125B2RF	939	44.2	53.90	506
Mean	1028	43.5	53.12	546

Table 7. Colorado County Average Yield, Turnout, Loan Value and Lint Value.

Variety	Yield (lbs/acre)	Turnout %	Loan Value (¢/lbs)	Lint Value ($/Ac)
PHY 499WRF	1383	42.1	52.88	732
NG 5315B2F	1341	39.6	53.87	723
DP 1219B2F	1328	40.6	53.92	716
PHY 575WRF	1246	40.3	53.80	671
FM 2989GLB2	1238	41.7	53.76	666
ST 6448GLB2	1227	40.6	53.72	660
PHY 339WRF	1225	42.0	53.58	656
DP 1044B2F	1218	42.3	53.90	656
FM 1944GLB2	1195	39.6	53.75	642
CT 13125B2RF	1161	39.4	53.81	625
AT Nitro 44B2RF	1151	39.8	53.95	621
Mean	1247	40.7	53.72	670

Summary

The information in this poster represents only 5 of the 20 different Replicated Agronomic Cotton Evaluations (RACE) trials that were conducted in South and East-Central Texas in 2013 by Texas A&M AgriLife Extension Service.

In general, mean yields were similar in 2013 when compared to the previous 2 seasons in the Upper Gulf Coast. Although drought conditions were not as severe in 2013 as the previous years, early season rainfall was very limited across much of the UGC region and thus limited overall cotton yields for the season.

Early projections are for increased planted acres of cotton in 2014. The data generated from these RACE trials and other similar trials throughout the state, provide growers with updated information on the most marketed varieties and technology commercially available to them for 2014 and beyond.

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