2015 TEXAS REPLICATED AGRONOMIC COTTON EVALUATION (RACE) – TRIAL SUMMARY

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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 ever rapid increasing rate in introduction of new cultivars/technologies into the marketplace, growers and practitioners are forced to make cultivar selection decisions with even less information than ever. 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, these on-farm, large-plot cultivar testing program have been 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 5.2 million acres in 2015 which was about 1 million acres less than 2014. In the Lower Rio Grande Valley, Coastal Bend and Blackland Regions of Texas, 356,000 acres of cotton was planted in 2015, which was over 0.5 million acres less than 2014. Transgenic varieties accounted for over 99.75% of the state acreage in 2015. According to the USDA-Agricultural Marketing Service "Cotton Varieties Planted 2015 Crop" survey for the Corpus Christi Classing Office, the most popular varieties included in these trials for that region that they track were: DP 1044B2F – 8.7, ST 4946B2F – 7.8%, DG 2570 B2RF - 4.3%, Americot AM 1511B2RF – 4.7%, PHY 499WRF – 3%, and PHY 333WRF – 3%.

Objective

The objective of this project is to compare yield and lint quality of Stacked-Gene cultivars grown in large plot replicated trials on producer-cooperator fields in the Upper Coastal Bend region of Texas.

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, WideStrike, or TwinLink varieties with tolerance to glyphosate and/or dicamba herbicides. The Fort Bend county location was irrigated.

Plot dimensions ranged from 0.67 to 1.4 acres in size, depending upon the location. Studies were arranged in a randomized complete block design with three replications (Table 1). Yield data from all trials consisted of 3 reps, except Colorado County which ended up with only two replications. All trials were machine harvested with commercial 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 2015 Cotton Loan Calculator. Statistical analysis of data were conducted using Agricultural Research Manager 8, using LSD (P=0.05).

Table 1. Trial location, cooperator, planting date, harvest date, row spacing, plot dimensions and area of 2015 Texas A&M AgriLife Extension Service RACE Trials.

County	Cooperator	Planting Date	Harvest Date	Row Spacing (inches)	Plot Dimensions	Irrigated or Dryland	Area harvested /plot
Jackson	Chris Hajovsky	Apr 6	Aug 27	38	6 rows x 2350 ft	Dryland	1.03
Matagorda	Hansen Farms	Apr 7	Sept 24	40	6 rows x 1458 ft	Dryland	0.67
Wharton	Kresta Farms	May 3	Sept 24	40	6 rows x 1450 ft	Dryland	0.65
Fort Bend	Alan and Lisa Stasney	Apr 4	Sep 17	36	12 rows x 1330 ft	Irrigated	1.1
Colorado	Mahalitc Farms	May 4	Oct 7	36	12 rows x 1700 ft	Irrigated	1.4

Results and Discussion

Mean variety yield across all locations ranged from 1013 to 756 lbs/ac for DP 1555B2RF and FM 1900GLT, respectively (Table 2). Overall mean yield of all varieties across all five locations was 916 lbs/ac. Mean turnout for each variety across all locations ranged from 47.2 to 43.7 for ST 6188B2RF and FM 1900GLT, respectively. Loan value ranged from 54.67 to 52.55 cents/lb for PHY 444WRF and NG 3406B2XF, respectively. Mean lint value for each variety across all locations ranged from $540 to $406 per ac for PHY 333WRF and FM 1900GLT, respectively. Mean location yields ranged from 1308 to 665 lbs/ac for the Colorado and Wharton Co RACE trials, respectively (Tables 3-7).

The Colorado Co RACE trial was the latest planted of the trials and thus the latest to be harvested in 2015 and it also ended with the greatest mean yields of all locations. In addition, the Colorado Co RACE trial had the highest mean lint loan value of 54.23 cents/lb of all the locations. Mean turnout per location ranged from 43.3 to 47.0 for Jackson and Matagorda counties, respectively. Mean dollars per acre lint value ranged from 709 to 346 for Colorado and Wharton counties, respectively.

Table 2. Multi-county summary of mean yields, percent lint turnout, loan value and lint value of RACE Trials, for Jackson, Matagorda, Wharton, Fort Bend and Colorado Counties, 2015.

Variety	Yield (lbs/acre)	Turnout %	Loan Value (¢/lbs)	Lint Value ($/Ac)
PHY 333WRF	999	46.3	54.00	540
ST 4946GLB2	990	44.9	53.57	531
DP 1555B2RF	1013	46.7	52.67	536
PHY 444WRF	933	46.8	54.67	510
DP 1553B2XF	920	45.6	53.87	496
NG 3406B2XF	911	46.1	52.55	482
DG 3385B2XF	876	44.3	53.07	466
ST 6182GLT	898	47.2	53.02	478
CL 3885B2XF	862	44.8	52.96	458
FM 1900GLT	756	43.7	53.61	406
Mean	916	45.6	53.40	490

Table 3. Mean lint yields, percent lint turnout, loan value and lint value from Jackson County RACE Trial, 2015.

Variety	Yield (lbs/acre)	Turnout %	Loan Value (¢/lbs)	Lint Value ($/Ac)
DP 1553B2XF	815	45.2	54.17	441
PHY 444WRF	783	45.6	54.67	428
PHY 333WRF	789	42.8	54.20	428
NG 3406B2XF	725	43.3	54.02	392
ST 4946GLB2	716	41.9	54.55	390
DG 3385B2XF	701	42.9	53.57	376
ST 6182GLT	658	43.9	53.50	352
CL 3885B2XF	667	42.5	52.78	352
FM 1900GLT	609	41.7	54.57	332

Table 4. Mean lint yields, percent lint turnout, loan value and lint value from Matagorda County RACE Trial, 2015.

Variety	Yield (lbs/acre)	Turnout %	Loan Value (¢/lbs)	Lint Value ($/Ac)
PHY 333WRF	913	47.9	53.50	489
ST 4946GLB2	906	45.5	52.18	473
ST 6182GLT	832	48.5	53.27	443
DP 1555B2RF	832	47.7	53.02	441
PHY 444WRF	793	48.3	54.68	434
DP 1553B2XF	779	46.8	54.08	422
DG 3385B2XF	743	45.9	52.58	391
CL 3885B2XF	726	46.5	52.85	384
NG 3406B2XF	744	46.7	51.45	383
FM 1900GLT	644	44.5	52.68	339
Mean	798	47.0	52.88	422

Table 5. Mean lint yields, percent lint turnout, loan value and lint value from Wharton County RACE Trial, 2015.

Variety	Yield (lbs/acre)	Turnout %	Loan Value (¢/lbs)	Lint Value ($/Ac)
PHY 333WRF	751	45.0	53.77	404
DP 1555B2RF	746	46.8	50.90	380
ST 4946GLB2	720	42.6	52.62	379
DG 3385B2XF	698	44.3	51.72	361
DP 1553B2XF	669	45.5	53.03	355
PHY 444WRF	625	45.8	54.50	341
NG 3406B2XF	693	45.2	49.15	340
CL 3885B2XF	657	44.4	51.58	338
ST 6182GLT	652	47.3	50.68	330
FM 1900GLT	439	41.5	52.95	233
Mean	665	44.8	52.09	346

Table 6. Mean lint yields, percent lint turnout, loan value and lint value from Fort Bend County RACE Trial, 2015.

Variety	Yield (lbs/acre)	Turnout %	Loan Value (¢/lbs)	Lint Value ($/Ac)
PHY 444WRF	1170	48.8	54.80	641
ST 4946GLB2	1123	49.4	53.87	605
NG 3406B2XF	1105	47.1	53.80	594
DP 1553B2XF	1096	45.0	53.73	589
PHY 333WRF	1076	45.8	54.37	585
DP 1555B2RF	1109	46.8	52.45	581
CL 3885B2XF	1041	45.7	53.55	555
DG 3385B2XF	1029	45.3	53.17	548
FM 1900GLT	984	48.3	54.43	535
ST 6182GLT	936	45.2	53.43	500
Mean	1067	46.7	53.76	573

Table 7. Mean lint yields, percent lint turnout, loan value and lint value from Colorado County RACE Trial, 2015.

Variety	Yield (lbs/acre)	Turnout %	Loan Value (¢/lbs)	Lint Value ($/Ac)
ST 4946GLB2	1483	45.3	54.63	810
PHY 333WRF	1468	49.9	54.18	795
ST 6182GLT	1413	51.0	54.20	766
DP 1555B2RF	1364	45.7	54.33	741
PHY 444WRF	1293	45.6	54.70	707
NG 3406B2XF	1286	48.4	54.33	699
DP 1553B2XF	1241	45.4	54.33	674
CL 3885B2XF	1219	44.7	54.05	659
DG 3385B2XF	1208	43.1	54.33	656
FM 1900GLT	1104	42.4	53.40	590
Mean	1308	46.1	54.23	709

Conclusions

The information in this poster represents only 5 of the 13 different Replicated Agronomic Cotton Evaluations (RACE) trials that were conducted in South and East-Central Texas in 2015 by Texas A&M AgriLife Extension Service.

In general, mean yields were lower in 2015 when compared to the previous year in the Upper Gulf Coast. Rainfall varied a good amount across the region in 2015. In general the region received greater than average rainfall from prior to planting through the end of May. Some areas received some isolated showers between June to August and then more widespread rain fell across the region in early September. Early projections are for planted acres of cotton across the Upper Gulf Coast Region in 2016 to be similar or greater than in 2015. 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 2016 and beyond.