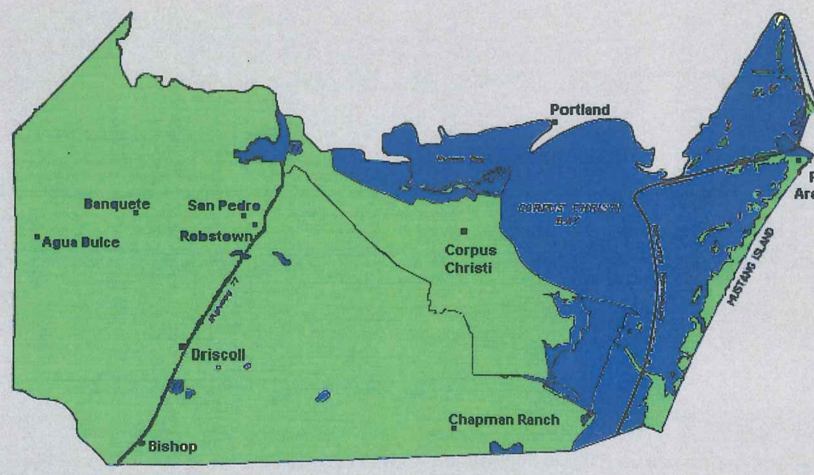
2016

Result Demonstration Handbook

Nueces County



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Texas A&M AgriLife Extension Service, Dr. Doug Steele, Director, The Texas A&M University System, College Station, Texas

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FOREWORD

This publication was produced for Coastal Bend agricultural producers by the Nueces County Extension Office and contains results of demonstrations and applied research projects planned by the Agriculture and Natural Resources Committee with cooperating farmers and ranchers. The support provided by cooperators, Texas A&M AgriLife Extension Service specialists, staff, research scientists of Texas A&M AgriLife Research, and private industry was essential for the completion of this book and is greatly appreciated.

Weather is always a major driver of the end result in production agriculture. This year started with very good planting conditions which allowed for good stand establishment. Ample rains during the season left growers with a full moisture profile in June. In some areas standing water lowered yield expectation. However, it was an exceptional year for corn producers across the county. Grain sorghum and cotton yields were also strong with all county yield estimates exceeding historic averages.

The demonstration and applied research projects were conducted to provide information to the local Ag industry on the performance of certain new agricultural technologies and management practices under Nueces County growing conditions.

Many results reported in this book are based on only one year's data. It should be remembered that different growing conditions might produce different results. Results obtained from a three to five-year period are more reliable and should be used for making a complete change from normal production or management practices.

Any references made to commercial products or trade names were made solely for educational purposes with the understanding that neither endorsement nor discrimination is implied by the Texas A&M AgriLife Extension Service or its agents.

It is my hope that the information contained within this document might be put to use to enhance the performance of agricultural enterprises in the Coastal Bend of Texas.

Jason P. Ott
County Extension Agent
Texas A&M AgriLife Extension Service
Agriculture & Natural Resources
Nueces County

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AGRICULTURAL RESULT DEMONSTRATIONS

"Planning, Implementing and Evaluating"

For over 100 years "result demonstrations" have been one of the most effective educational methods used by County Extension Agents to encourage the adoption of research based knowledge by local farmers and ranchers. The result demonstration is a well planned trial that measures the benefits derived from the use of a given practice under local conditions. Demonstration trials are an effective means of evaluating the benefits of new crop protection chemicals, improvements in planting seed genetics and other technological advancements.

Result demonstrations are not conducted without a purpose or need. They are the basis for the County Extension educational program efforts directed at local problems and providing a stronger data base for agricultural decision making.

The citizens who serve on the various Extension program area committees are largely responsible for identifying problem areas. Committees made up of individuals involved in various phases of agriculture, willingly volunteer their time and talents. These committees are responsible for giving direction to the Extension program effort and for identifying problem areas that need to be addressed through result demonstrations or other methods.

The Nueces County Agricultural Extension Agents greatly appreciate the assistance provided by the members of the Agriculture & Natural Resources Committee, Field Crops Task Force and Livestock Task Force committees. Without their support and direction and the involvement of the cooperators, the demonstration results reported in this publication would not have been possible.

AGRICULTURE & NATURAL RESOURCES COMMITTEE MEMBERS

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Mary Fox	Jon Herrmann	Darrell Lawhon
David Mayo	Mark Miller	

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Lincoln McNair	Jon Gwynn	Jim Massey, IV
Mark Miller	David Ocker	John Freeman
Darrell Lawhon	Scott Ordner	

LIVESTOCK TASK FORCE MEMBERS

Jon Herrmann	Scott Frazier	Leon Little	Mary Fox

ACKNOWLEDGEMENTS

We wish to acknowledge those who contributed products or services to the success of these demonstrations. We greatly appreciate their support. Individual cooperators are acknowledged in the introduction of each demonstration report. The support provided by the members of the Extension Leadership Advisory Board, the Field Crops Task Force, Livestock Task Force and Ag & Natural Resources committee are also appreciated. Without the support of the Nueces County Commissioners Court and the County Extension Office staff, these result demonstrations and this handbook would not have been possible. Special thanks to Perry Foundation for their support in making printing of this book possible.

NUECES COUNTY COMMISSIONER'S COURT

County Judge	Loyd Neal
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Commissioner Precinct 3	Oscar Ortiz
Commissioner Precinct 4	Brent Chesney

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COOPERATING SEED COMPANIES

All-Tex Seed Co.	P O Box 1057	Levelland, TX 79336
Americot	105 Buck Lane	Georgetown, TX 78628
B-H Genetics	5933 FM 1157	Ganado, TX 77962
Bayer/Fibermax	13557 Carlos 5th Port	Corpus Christi, TX 78418
Cargill Specialty Canola Oils	2300 N Yellowstone Hwy, Suite 122	Idaho Falls, ID 83401
Croplan Genetics	P O 476	Taft, TX 78390
Dreamland Industries LTD.	126 Bacacita Farm. Rd.	Abilene, TX 79602
Dow Agro Sciences	317 West Alice	Kingsville, TX 78383
Delta & Pine Land Seed	4014 Northwood	Corpus Christi, TX 78410
Foundation Seed Service	TAMU	College Station, TX 77841
Gayland Ward Seeds	1900 Pease St, Ste 305	Vernon, TX 76384
Golden Acres	905 E. Trant Dr.	Kingsville, TX 78363
Monsanto	408 Vista Cove	Victoria, TX 77904
Phytogen	832 Swynford Ln.	Collierville, TX
Pioneer International	14901 Red River	Corpus Christi, TX 78410
Seed Source Genetics	5159 FM 3354	Bishop, TX 78343
Sesaco	29865 N. Abram Rd.	Edinburg, TX 78511
Sorghum Partners, LLC	P O Box 189	New Deal, TX 79350
Stoneville Pedigreed Seed Co.	13557 Carlos 5th Port	Corpus Christi, TX 78418
Terral Seed	P O Box 997	El Campo, TX 77437
Triumph Seed Company Inc.	P O Box 1050	Ralls, TX 79357

COOPERATING CHEMICAL AND FERTILIZER COMPANIES

Bayer Crop Science Division	Heath Reeves / Butch Roecker	Corpus Christi, TX 78418
Coastal Acres LLC.	John Miller	Robstown, TX 78380
Dow Agro Sciences	Benny Martinez / Kendall Huey	Kingsville, TX 78363
Helena Chemical Co.	Dorian David	Corpus Christi, TX 78426
Monsanto	Daniel Gonzalez / Harvey Buehring	Orange Grove, TX 78372

SPECIAL ACKNOWLEDGMENTS FOR TECHNICAL SUPPORT

Mr. Rudy Alaniz	Dr. Joe Paschal	Dr. Josh McGinty
Dr. Tony Provin	Dr. Dan Hale	Dr. Carlos Fernandez
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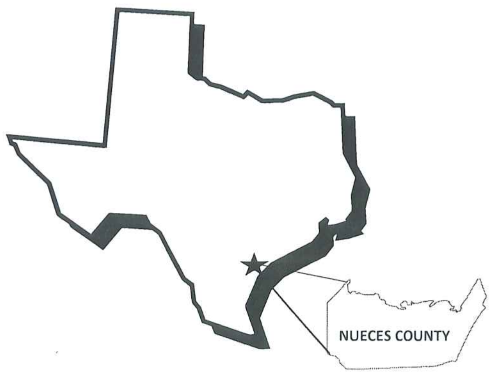


NUECES COUNTY
Agricultural Statistics
County Seat—Corpus Christi, TX

Population (2016)	356,221

Land Area	Acres
Cropland/Improved Pastures	311,300
Rangeland	33,800
Industrial Sites, Recreational Facilities	
Urban Areas	93,492
Total	**438,592**

Weather	Data
Average Daily High Temperature	82°F
Average Daily Low Temperature	63°F
Days above 90°F	101
Days below 32°F	7
Mean Temperature	72.3°F
First Freeze Date	Dec. 15
Last Freeze Date	Feb. 9
Growing Season Average Days	309
Precipitation-Mean per Year	31.41"
Precipitation-Days/Year above 0.1"	39

2016 Agricultural Income	$1000
Grain Sorghum	46,023.0
Cotton/Cottonseed	70,919.2
Government Programs	8,831.5
Crop Insurance	817.5
Cattle	1,903.1
Corn	14,030.7
Hay	3,319.3
Nursery / Turf	2,088.1
Other Livestock	367.1
Other	1,659.4
Total	**149,958.9**

Major Agricultural Commodities	(2016)
Grain Sorghum Planted Acres	159,810
Cotton Planted Acres	98,245
Corn Planted Acres	36,586
Wheat Planted Acres	8,071
Sesame Planted Acres	925
Hay Acreage Planted Acres	12,573
Beef Cattle Cow #s	2,000

History - *Nueces County was formed in 1846 and was once part of San Patricio County. The county seat is Corpus Christ, and was incorporated in 1846. Nueces County is bordered by San Patricio County (north), Jim Wells County (west), Kleberg County (south) and by Corpus Christi Bay, Laguna Madre and Redfish Bay (all east). The County was named after the Nueces River which flows through the county.*

Topography - *Nueces County comprises 847 square miles of the Coastal Prairies region. The terrain is generally flat. The elevation ranges from sea level to 180 feet above sea level. In the central part of the county the soil varies from vary dark loams to gray or black cracking clayey soils. In the west the soils varies from very dark loams to gray or black cracking clayey subsoils. In the coastal region the soils are sandy; in marsh areas the soils are also very dark with clayey subsoils.*

Climate - *The climate is humid-subtropical. Temperatures range from an average high of 93°F in July to an average low of 47°in January.*

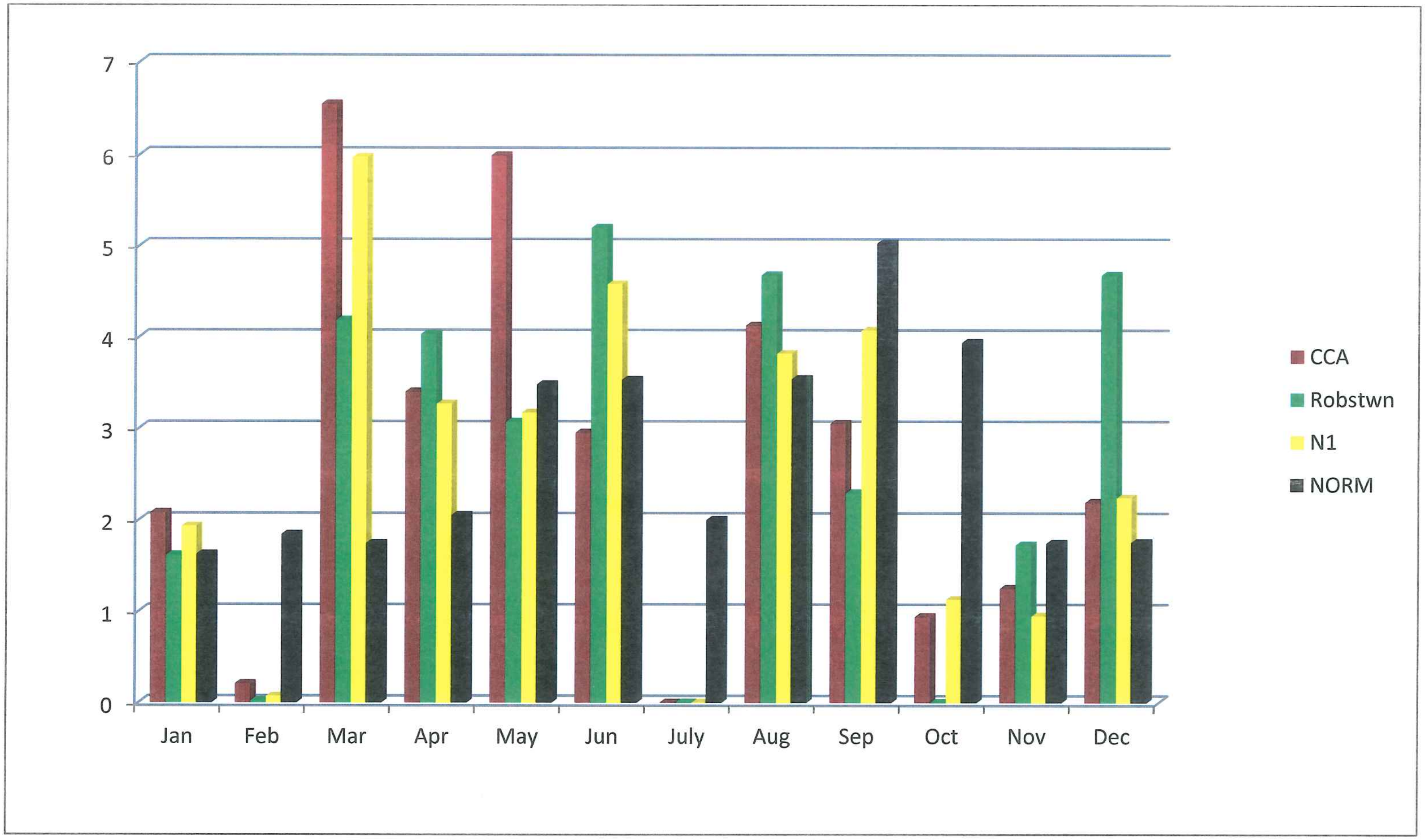
NUECES COUNTY
1929-2016
Yearly Rainfall

Year	Corpus Christi	Robstown	Year	Corpus Christi	Robstown	Year	Corpus Christi	Robstown
1929	25.67	26.28	1965	25.29	22.83	2001	32.25	33.52
1930	25.31	28.26	1966	29.89	28.86	2002	31.39	44.77
1931	36.86	36.66	1967	38.22	37.31	2003	28.70	35.30
1932	22.67	20.77	1968	41.53	41.45	2004	35.30	39.08
1933	23.06	27.59	1969	23.57	38.83	2005	25.31	21.72
1934	30.97	29.75	1970	39.47	36.34	2006	33.93	26.55
1935	38.99	31.97	1971	36.95	55.62	2007	40.63	49.29
1936	26.28	35.37	1972	36.41	29.23	2008	27.99	25.70
1937	24.05	23.75	1973	43.53	43.86	2009	20.61	11.78
1938	21.54	24.64	1974	24.81	28.20	2010	43.92	35.5
1939	19.74	20.33	1975	25.19	31.49	2011	12.06	6.12
1940	25.13	26.68	1976	39.39	42.37	2012	20.63	17.23
1941	42.13	48.41	1977	26.25	24.79	2013	23.42	21.4
1942	33.67	36.34	1978	39.14	34.02	2014	29.36	23.34
1943	26.87	20.05	1979	39.04	29.53	2015	45.02	35.69
1944	26.45	27.07	1980	32.69	32.50	2016	32.70	31.48
1945	30.14	25.20	1981	44.02	41.42	2017		
1946	34.09	N/A	1982	22.47	22.71	2018		
1947	33.26	N/A	1983	36.91	32.21	2019		
1948	22.43	24.96	1984	22.24	30.82	2020		
1949	30.28	27.19	1985	36.70	49.53	2021		
1950	15.48	8.40	1986	32.15	25.46	2022		
1951	26.91	29.82	1987	30.66	33.31	2023		
1952	21.31	12.02	1988	18.91	17.76	2024		
1953	24.14	26.69	1989	19.22	17.41	2025		
1954	16.02	18.38	1990	21.10	24.19	2026		
1955	21.87	22.85	1991	48.07	41.02	2027		
1956	21.73	16.84	1992	41.42	30.31	2028		
1957	28.00	29.91	1993	32.34	30.89	2029		
1958	42.62	44.28	1994	38.96	33.37	2030		
1959	38.44	30.96	1995	36.93	33.85	2031		
1960	44.35	43.01	1996	17.32	20.48	2032		
1961	26.44	28.19	1997	36.03	39.65	2033		
1962	15.49	14.49	1998	30.62	33.38	2034		
1963	14.66	19.29	1999	29.22	28.05	2035		
1964	21.71	20.49	2000	22.08	30.89	2036		
						AVG	***29.78***	***29.53***

Data collected from the National Oceanic and Atomonspheric Administration, National Weather Service, and Nueces County Record Star. Robstown Fire Dept. 2008-2009. Robstown reporting station was closed due to World War II in 1946 and 1947

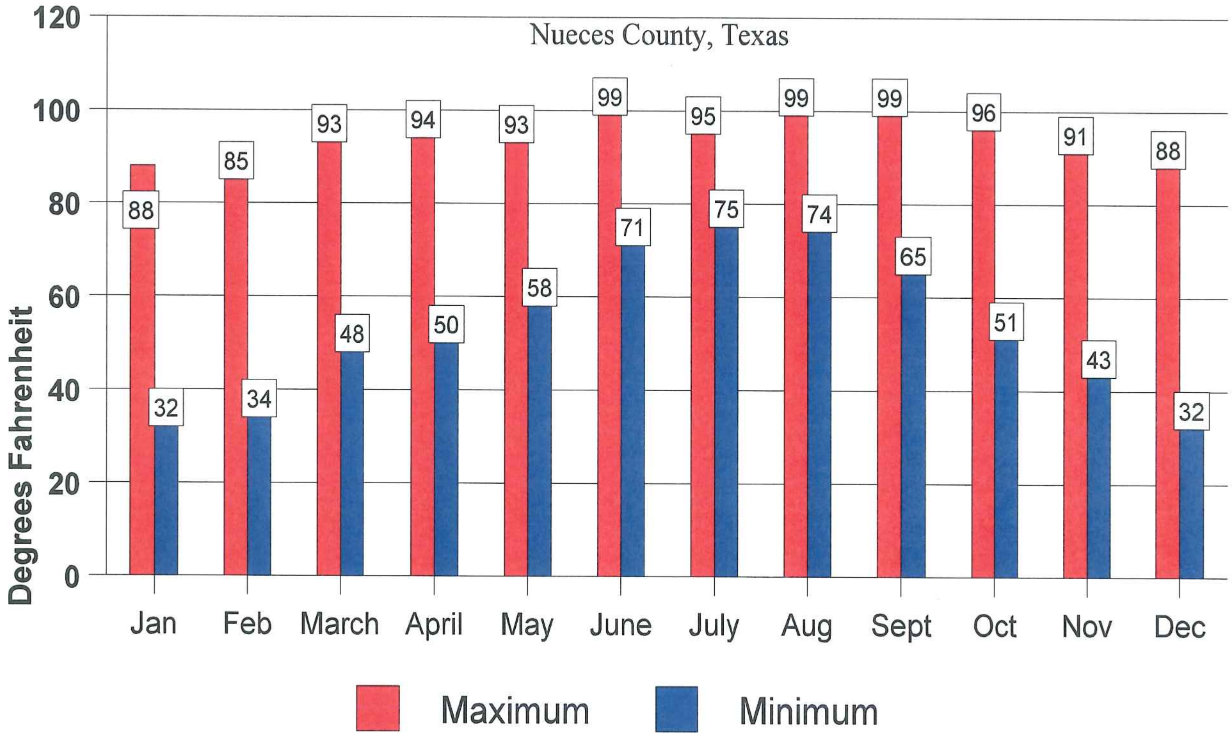
*Totals for 2004 include snowfall that has been converted into precipitation. (10" snow = 1" rain)

2016 Precipitation Data
Nueces County, Texas

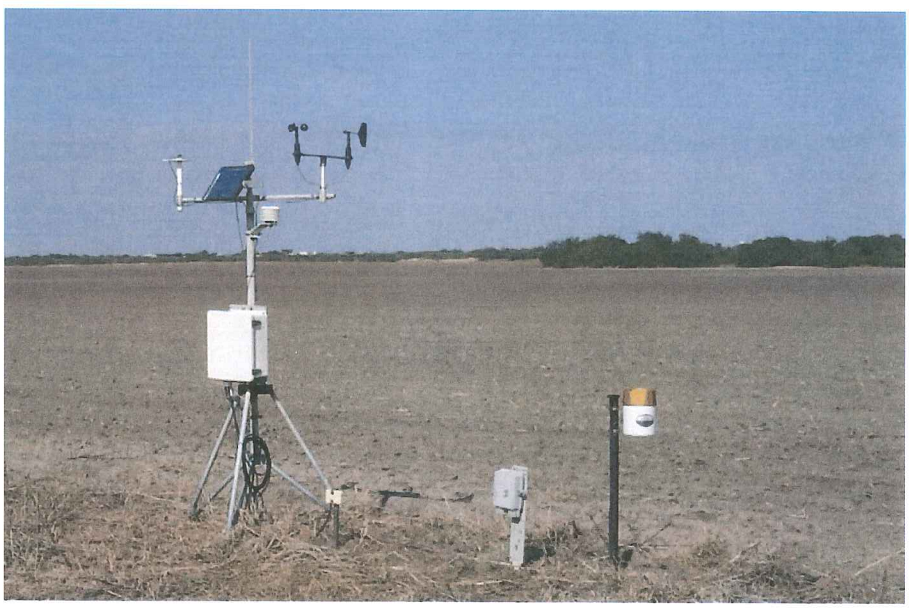


Precipitation Data Collection Site	2015 Precipitation (Inches)
N1 Nueces Station	31.2
Corpus Christi Airport	32.72
Robstown	31.48
2016 Rainfall Average	31.8
Normal*	32.26

*This normal is for the time frame 1971-2000 recorded by National Weather Service at Corpus Christi, Texas.



The temperature extremes were computed from data collected at the Clarkwood Research Center, Perry Foundation-South of Robstown, and Robstown Fire Department sites in Nueces County, Texas.



THE CROP-WEATHER PROGRAM FOR SOUTH TEXAS

The Crop-Weather Program for South Texas is an easy-to-use tool that can be accessed via the Internet at http://cwp.tamu.edu.

This program provides information about weather conditions, crop growth and development, crop water use, and soil water storage and is maintained by Dr. Carlos Fernandez of the Texas A&M Agriculture Experiment Station in Corpus Christi, Texas.

MAP LEGEND

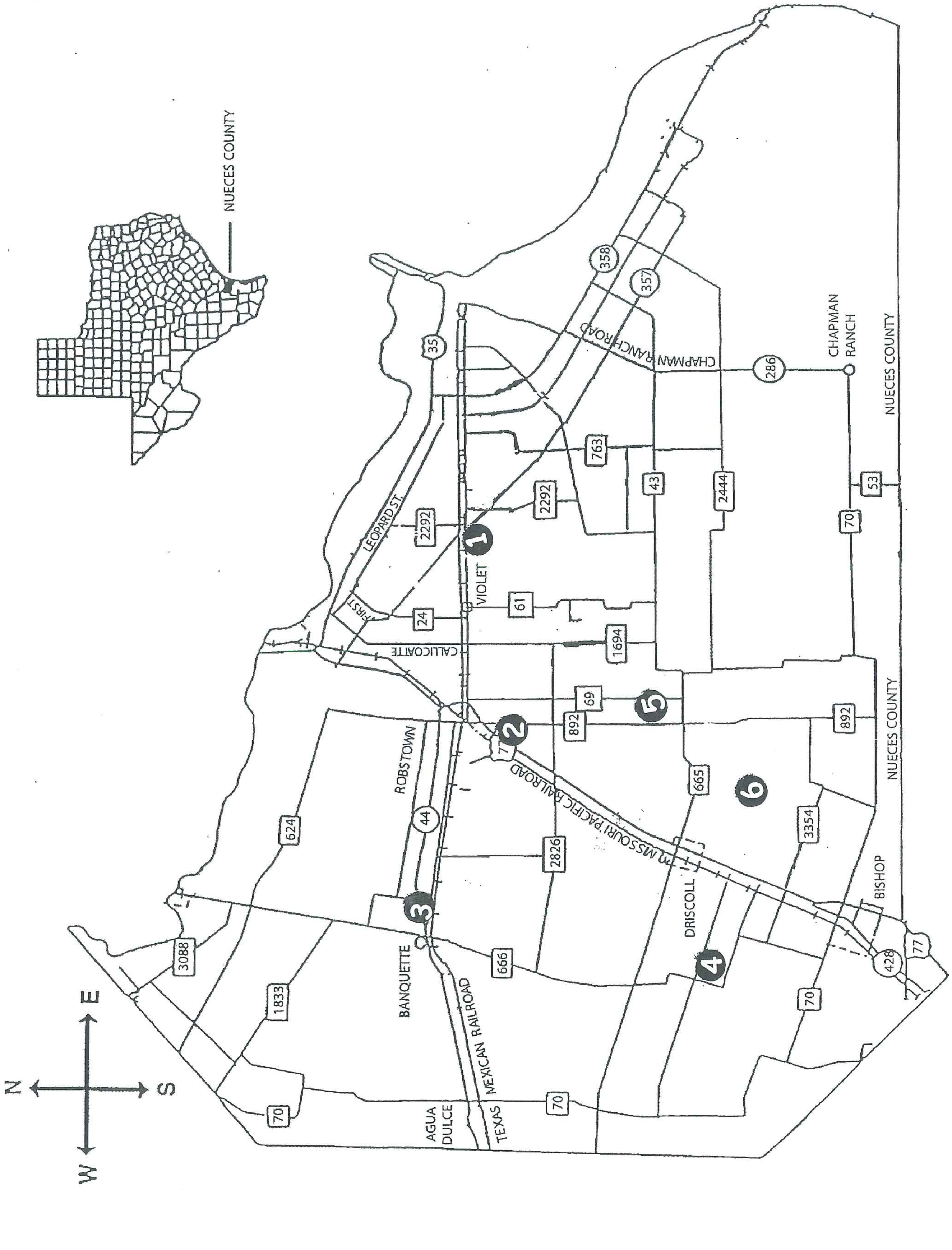
Map Code .... **Location**

COTTON TRIALS

Map Code	Location
1	**Monster Cotton Variety Trial** Cooperator: TAMU Research & Extension Center
1	**Replicated Agronomic Cotton Evaluation Trial** Cooperator: TAMU Research & Extension Center
2	**Replicated Agronomic Cotton Evaluation Trial** Cooperator: Massey Farms
6	**Replicated Agronomic Cotton Evaluation Trial** Cooperator: Lawhon Farms
6	**Comparative Yield of Cotton At Various Planting Densities Trial** Cooperator: Lawhon Farms

SORGHUM TRIALS

Map Code	Location
3	**Small Plot Evaluation of Sugarcane Aphid Tolerance** Cooperator: Massey Farms
3	**Large Plot Evaluation of Sugarcane Aphid Tolerance** Cooperator: Massey Farms
1	**Hybrid Performance Evaluation for Resistance to Sugarcane Aphid** Cooperator: TAMU Research & Extension Center
4	**Hybrid Performance Evaluation** Cooperator: Faske Farms
5	**Hybrid Performance Evaluation)** Cooperator: Ordner Farms



NUECES COUNTY
N
E
S
W
LEOPARD ST.
FIRST
CALLICOATTE
VIOLET
ROBSTOWN
BANQUETTE
AGUA DULCE
TEXAS MEXICAN RAILROAD
MISSOURI PACIFIC RAILROAD
DRISCOLL
BISHOP
CHAPMAN RANCH
CHAPMAN RANCH ROAD
NUECES COUNTY
NUECES COUNTY
35
358
357
286
2292
2292
763
43
2444
53
70
24
61
1694
69
892
892
77
77
44
624
2826
665
3354
3088
1833
666
70
70
70
428
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6

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Nueces County

Cotton Result Demonstrations

HISTORY OF COTTON PRODUTION
NUECES COUNTY 1929-2016

Year	Acres Harvested	Lbs /Acre	Total Bales
1929	268,000	213	129,000
1930	250,000	295	154,000
1931	242,000	178	94,900
1932	226,900	140	66,100
1933	252,300	227	83,400
1934	173,000	159	57,400
1935	186,000	232	90,200
1936	201,000	207	87,000
1937	218,000	203	92,800
1938	166,200	232	74,900
1939	152,200	254	79,300
1940	139,200	201	54,600
1941	135,000	212	57,900
1942	136,000	276	77,245
1943	133,000	297	82,300
1944	119,000	215	53,300
1945	106,000	211	46,600
1946	90,000	235	44,000
1947	110,000	289	66,350
1948	91,000	282	53,400
1949	140,000	353	103,000
1950	95,500	235	44,200
1951	216,000	51	22,900
1952	174,000	282	102,000
1953	141,500	60	17,700
1954	122,000	432	109,000
1955	86,000	112	20,100
1956	98,000	315	64,000
1957	787,000	339	55,500
1958	95,770	434	83,040
1959	108,200	336	74,669
1960	114,600	352	80,570
1961	107,600	420	90,385
1962	116,900	267	62,480
1963	106,400	181	38,602
1964	109,200	285	62,240
1965	104,200	327	62,241
1966	71,300	455	64,955
1967	66,300	314	41,579
1968	87,900	306	53,758
1969	87,000	285	49,577
1970	60,800	193	23,404
1971	63,500	224	29,700
1972	74,700	295	44,000
1973	49,900	253	25,300
1974	54,900	481	52,769
1975	27,800	466	25,884
1976	48,000	436	43,583
1777	78,000	528	85,884
1978	77,600	447	72,422
1979	109,900	463	105,975
1980	100,200	326	68,600
1981	67,400	514	71,900
1982	53,800	523	58,900
1983	39,400	600	49,300
1984	56,100	614	72,020
1985	58,800	883	107,900
1986	59,600	754	93,600
1987	60,000	710	85,200
1988	86,900	498	90,200
1989	66,100	385	53,000
1990	86,100	326	58,400
1991	117,100	645	157,300
1992	77,100	485	77,900
1993	78,800	439	72,000
1994	87,700	560	102,400
1995	125,200	589	153,700
1996	75,700	337	53,100
1997	97,900	454	92,500
1998	85,100	446	79,000
1999	109,100	757	172,000
2000	118,300	771	190,000
2001	117,000	570	139,000
2002	110,000	598	137,000
2003	131,300	841	230,000
2004	141,600	870	246,384
2005	142,900	552	164,200
2006	54,500	562	63,800
2007	109,600	917	210,000
2008	79,800	475	78,900
2009	4,116	360	3,087
2010	104,050	866	187,721
2011	111,527	669	155,441
2012	30,200	370	23,300
2013	2,055	350	1,498
2014	123,300	667	171,300
2015	29,200	817	49,700
2016	98,245	880	180,116
2017			
2018			
2019			
2020			
2021			
2022			
2023			
2024			
2025			
2026			
2027			
2028			
2029			
2030			
2031			
2032			
2033			
2034			
2035			
2036			

Data secured from U.S. Department of Agriculture Statistical Reporting Service and Texas Crop Livestock Reporting Service.

Figures for the 2016 season were estimated using data obtained from the Nueces County FSA Office, and the Nueces County Extension Office

Replicated Agronomic Cotton Evaluation Trial

Texas A&M AgriLife Extension Service
Nueces County, 2016

Cooperator: Darrell Lawhon

Authors: J.P. Ott and J.A. McGinty

Summary

This test was located on the Darrell Lawhon Farm on County Road 73B, north of Concordia. Soil moisture conditions at planting were good and rainfall during the growing season was above normal. Ten commercial cotton uniform stacked-gene varieties were evaluated for agronomic performance. The best performing variety in this test was PHY 444 WRF at 1,578 pounds of lint per acre, although there was statistically no yield difference between it and PHY 312 WRF, DP 1646 B2XF, DG 3526 B2XF, or PHY 333 WRF. The average lint yield for this test was 1,425 pounds per acre.

Objective

To evaluate commercially available cotton varieties growing under Nueces County conditions in a replicated evaluation.

Materials and Methods

The effect of cotton variety on lint yield was evaluated during the 2016 growing season at the Darrell Lawhon Farm near Concordia in Nueces County, Texas on a Victoria Clay soil. The experimental design was a randomized complete block with ten variety treatments and three replications. Plots consisted of six rows on 38-inch centers and a length of 2,979 feet.

All varieties were planted into fair moisture on March 28 into a conventional-tilled field. Treflan, at a rate of 1 qt/ac, had previously been applied and incorporated. A pre-plant fertility application of 63-13-0 lbs N-P-K per acre was also applied to the test area. The test location was kept weed-free using cultivation and postemergence herbicide during the growing season. Rainfall was recorded at the field during the growing season and totaled 13.61 inches.

Plots were harvested on August 12 using a John Deere 7760 Picker. A bale module was wrapped for each individual plot and weighed on a platform scale. Sub-samples were collected from each bale for ginning and fiber analysis using standard HVI classing procedures.

Results and Discussion

The data tables (Table 1 and 2) below provide comparison of data on plant population, emergence rating, fiber quality, lint yield, and loan value.

Table 1. Comparison of cotton plant population, emergence rating, storm rating, and seed cotton yield between varieties, Lawhon Farm, Nueces County, Texas, 2016.

Variety	Plants/A	Emergence Rating (1-9, 9=Best)	Seed Cotton Yield (lb/A)
PHY 444 WRF	33,844	7.7	3,712
PHY 312 WRF	33,844	8.7	3,770
DP 1646 B2XF	36,682	7.3	3,647
DG 3526 B2XF	35,809	8.0	3,356
PHY 333 WRF	37,774	7.3	3,570
ST 4848 GLT	38,210	8.7	3,330
ST 6182 GLT	34,499	8.0	3,059
NG 5007 B2XF	38,429	8.0	3,247
DP 1522 B2XF	37,119	8.7	3,318
FM 2007 GLT	42,140	8.0	2,950
Mean	36,835	8.0	3,396
C.V.	4.35	7.15	5.59
L.S.D. 0.05	2,748.91	NS	325.36

Table 2. Comparison of cotton lint yield, lint quality, loan value, and lint quality between varieties, Lawhon Farm, Nueces County, Texas, 2016.

Variety	Lint Yield (lb/A)	Turnout (%)	Micronaire	Length (inches)	Strength (g/tex)	Uniformity	Loan Value (¢/lb)	Lint Value ($/A)
PHY 444 WRF	1,578	42.5	3.8	1.25	32.3	85.8	55.20	871
PHY 312 WRF	1,556	41.3	4.3	1.19	33.4	85.5	55.18	858
DP 1646 B2XF	1,542	42.3	4.4	1.21	31.8	84.6	54.98	848
DG 3526 B2XF	1,482	44.2	4.7	1.11	31.4	84.7	54.42	807
PHY 333 WRF	1,467	41.1	4.2	1.20	33.5	85.2	55.15	809
ST 4848 GLT	1,421	42.7	4.6	1.15	31.8	84.4	54.77	778
ST 6182 GLT	1,380	45.1	4.6	1.14	29.5	83.9	54.17	748
NG 5007 B2XF	1,346	41.5	4.4	1.14	29.1	84.3	54.50	734
DP 1522 B2XF	1,341	40.4	4.9	1.16	32.6	84.5	54.12	726
FM 2007 GLT	1,141	38.7	4.3	1.23	32.2	85.4	55.10	628
Mean	1,425	42.0	4.4	1.18	31.8	84.8	54.76	781
C.V.	10.83	4.34	7.33	3.94	5.01	1.10	1.10	11.30
L.S.D. 0.05	139.07	0.86	0.27	0.03	1.60	NS	NS	83.05

Conclusions

Cotton varieties performed well, with the best performing variety in the test being PHY 444 WRF with a lint value of $871 per acre. This was $90 per acre higher than the test average and $243 per acre higher than the lowest performing variety. The significant difference between varieties illustrates the importance of variety selection on farm profitability and the importance of variety testing under local conditions.

Acknowledgements

The cooperation and support of Darrell Lawhon for implementing this trial is appreciated and the support of cooperating seed companies by providing needed seed supplies to conduct this evaluation is also appreciated. In addition, special thanks to J.R. Cantu, Nueces County Demonstration Assistant, for assisting with data collection.

Replicated Agronomic Cotton Evaluation Trial

Texas A&M AgriLife Extension Service
Nueces County, 2016

Cooperator: Jim Massey, IV

Authors: J.P. Ott and J.A. McGinty

Summary

This test was located on the Jim Massey, IV Farm on FM 2826, south of Robstown. Soil moisture conditions at planting were good and rainfall during the growing season was above normal. Ten commercial cotton uniform stacked-gene varieties were evaluated for agronomic performance. The best performing variety in this test was PHY 333 WRF at 1264 pounds of lint per acre, although there was statistically no difference between it and PHY 312 WRF at 1240 pounds of lint per acre. The average lint yield for this test was 1113 pounds per acre.

Objective

To evaluate commercially available cotton varieties growing under Nueces County conditions in a replicated evaluation.

Materials and Methods

The effect of cotton variety on lint yield was evaluated during the 2016 growing season at the Jim Massey Farm near Robstown in Nueces County, Texas on a Victoria Clay soil. The experimental design was a randomized complete block with ten variety treatments and three replications. Plots consisted of eight rows on 30-inch centers and a length of 3,056 feet.

All varieties were planted into fair moisture on March 31 into a conventional-tilled field. A pre-plant fertility application of 100-20-0 pounds of N-P-K per acre was also applied to the test area. The test location was kept weed-free using cultivation and post-emergent herbicide during the growing season. Rainfall was recorded at the field during the growing season and totaled 16.65 inches. An additional 1.9 inches was received just prior to harvest. Therefore, storm ratings were taken prior to harvest.

Plots were harvested on August 19 using a John Deere 7760 Picker. A bale module was wrapped for each individual plot and weighed on a platform scale. Sub-samples were collected from each bale for ginning and fiber analysis using standard HVI classing procedures.

Results and Discussion

The data tables (Tables 1 and 2) below provide comparison of data on plant population, emergence rating, storm rating, fiber quality, lint yield, and loan value.

Table 1. Comparison of cotton plant population, emergence rating, storm rating, and seed cotton yield between varieties, Massey Farm, Nueces County, Texas, 2016.

Variety	Plants/A	Emergence Rating (1-9, 9=Best)	Storm Rating (1-9, 9=Best)	Seed Cotton Yield (lb/A)
PHY 333 WRF	35,401	8.0	8.2	3,142
PHY 312 WRF	38,443	8.7	7.7	3,043
NG 5007 B2XF	35,125	7.3	8.3	2,799
PHY 444 WRF	40,379	7.3	8.8	2,658
DP 1522 B2XF	41,762	8.7	8.2	2,716
DG 3526 B2XF	37,061	6.3	8.3	2,566
DP 1646 B2XF	41,486	7.3	7.7	2,700
ST 4848 GLT	40,932	7.7	8.2	2,549
ST 6182 GLT	29,870	7.0	8.0	2,517
FM 2007 GLT	32,273	8.0	9.0	2,632
Mean	37,273	7.6	8.2	2,732
C.V.	12.83	7.31	4.07	3.23
L.S.D. 0.05	NS	0.96	0.57	151.31

Table 2. Comparison of cotton lint yield, lint quality, loan value, and lint quality between varieties, Massey Farm, Nueces County, Texas, 2016.

Variety	Lint Yield (lb/A)	Turnout (%)	Micronaire	Length (inches)	Strength (g/tex)	Uniformity	Loan Value (¢/lb)	Lint Value ($/A)
PHY 333 WRF	1,264	40.2	4.1	1.16	30.0	83.2	54.60	690
PHY 312 WRF	1,240	40.8	3.9	1.17	31.9	85.5	55.17	684
NG 5007 B2XF	1,134	40.5	4.2	1.10	28.1	82.5	53.57	607
PHY 444 WRF	1,121	42.2	3.5	1.20	33.2	85.1	53.90	605
DP 1646 B2XF	1,102	39.4	4.8	1.10	31.5	83.1	53.97	595
DG 3526 B2XF	1,086	42.4	4.4	1.08	30.9	83.5	53.25	578
DP 1522 B2XF	1,086	41.5	4.3	1.18	31.0	82.7	54.68	594
ST 4848 GLT	1,057	41.5	4.3	1.11	31.2	83.2	53.93	571
ST 6182 GLT	1,057	42.0	4.4	1.09	28.4	83.4	53.23	563
FM 2007 GLT	986	37.5	4.0	1.18	32.3	84.4	55.03	542
Mean	1,113	40.8	4.2	1.14	30.9	83.7	54.13	603
C.V.	7.95	3.86	8.65	3.97	5.97	1.41	1.69	8.67
L.S.D. 0.05	72.78	1.30	0.28	0.03	2.02	1.37	1.20	47.91

Conclusions

Cotton varieties performed well, with the best performing variety in the test being PHY 333 WRF in terms of lint yield and value. However, there was no significant difference in lint yield or value per acre between PHY 333 WRF and PHY 312 WRF. There was $87 per acre difference between the variety with the highest lint value per acre and the test average and $148 per acre difference between it and the lowest performing variety. The significant difference between varieties illustrates the importance of variety selection on farm profitability and the importance of variety testing under local conditions.

Acknowledgements

The cooperation and support of Jim Massey, IV for implementing this trial is appreciated and the support of cooperating seed companies by providing needed seed supplies to conduct this evaluation is also appreciated. In addition, special thanks to J.R. Cantu, Nueces County Demonstration Assistant, for assisting with data collection.

Replicated Agronomic Cotton Evaluation Trial

Texas A&M AgriLife Research and Extension Center

Corpus Christi, Texas

2016

Dr. Joshua A. McGinty, Assistant Professor and Extension Agronomist

Rudy Alaniz, Technician and Clint Livingston, Technician

Variety	Lint Yield (lb/A)	Turnout (%)	Micronaire	Length (inches)	Strength (g/tex)	Uniformity	Loan Value (¢/lb)	Lint Value ($/A)
PHY 312 WRF	1,330^{a}	40.1^{cd}	4.1^{de}	1.18^{b}	32.2^{a}	85.7^{a}	55.13^{a}	733^{a}
PHY 333 WRF	1,293^{a}	39.9^{d}	4.0^{e}	1.18^{b}	30.4^{bc}	84.5^{ab}	54.89^{ab}	710^{ab}
NG 5007 B2XF	1,274^{ab}	41.1^{bc}	4.4^{bc}	1.13^{cd}	28.2^{d}	82.6^{d}	54.06^{cd}	689^{b}
DP 1646 B2XF	1,216^{bc}	41.4^{b}	4.2^{cd}	1.22^{a}	30.9^{ab}	84.6^{ab}	54.86^{ab}	667^{bc}
PHY 444 WRF	1,170^{c}	40.5^{bcd}	3.7^{f}	1.23^{a}	31.8^{a}	85.5^{a}	54.56^{ab}	638^{c}
DG 3526 B2XF	1,168^{c}	42.7^{a}	4.6^{ab}	1.10^{d}	29.7^{cd}	84.1^{bc}	53.74^{d}	628^{cd}
ST 6182 GLT	1,152^{cd}	43.5^{a}	4.6^{ab}	1.13^{c}	29.4^{cd}	84.6^{ab}	54.50^{ab}	628^{cd}
ST 4848 GLT	1,087^{de}	41.4^{b}	4.6^{a}	1.13^{c}	31.4^{ab}	83.6^{bcd}	54.43^{bc}	592de
FM 2007 GLT	1,079^{de}	37.3^{f}	4.1^{de}	1.17^{b}	31.0^{abc}	83.0^{cd}	54.81^{ab}	591de
DP 1522 B2XF	1,064^{e}	38.6^{e}	4.5^{ab}	1.14^{c}	31.8^{ab}	84.2^{bc}	54.78^{ab}	583^{e}
Mean	1,183	40.6	4.3	1.16	30.7	84.2	54.58	646
LSD (P=.05)	76.22	0.9386	0.22197	0.02946	1.5899	1.2328	0.65496	43.54
STD DEV	102.44	1.83	0.33	0.04	1.56	1.22	0.56	57.54
CV%	8.66	4.51	7.81	3.80	5.08	1.45	1.02	8.91

Corpus Christi Monster Cotton Variety Trial

Texas A&M AgriLife Research and Extension Center
Corpus Christi, Texas
2016

Dr. Joshua A. McGinty, Assistant Professor and Extension Agronomist

Rudy Alaniz, Technician and Clint Livingston, Technician

Variety	Lint Yield (lb/A)	Turnout (%)	Micronaire	Length (inches)	Strength (g/tex)	Uniformity	Loan Value (¢/lb)	Lint Value[1] ($/A)
CT 15634 B2RF	1568_{a}	$42.0_{a\text{-}h}$	$4.3_{b\text{-}i}$	$1.1_{c\text{-}m}$	$31.6_{d\text{-}l}$	$84.7_{a\text{-}f}$	54.73_{ab}	859_{a}
PHY 496 W3RF	1478_{ab}	$43.2_{a\text{-}e}$	$4.1_{e\text{-}i}$	1.1_{lmn}	$34.2_{a\text{-}i}$	$84.9_{a\text{-}e}$	54.24_{ab}	802_{abc}
PHY 312 WRF	1464_{ab}	$41.9_{b\text{-}h}$	$4.4_{b\text{-}h}$	$1.1_{b\text{-}i}$	$34.2_{a\text{-}h}$	86.2_{a}	55.15_{a}	807_{ab}
ST 4848GLT	1405_{abc}	$41.5_{c\text{-}h}$	$4.6_{a\text{-}f}$	$1.1_{i\text{-}n}$	$32.8_{a\text{-}k}$	$84.5_{a\text{-}f}$	54.53_{ab}	$766_{a\text{-}d}$
NG 3406 B2XF	$1368_{a\text{-}d}$	$40.1_{g\text{-}m}$	$4.5_{a\text{-}g}$	$1.1_{e\text{-}n}$	$31.0_{g\text{-}l}$	$85.1_{a\text{-}d}$	54.83_{ab}	$750_{a\text{-}e}$
PHY 333 WRF	$1352_{a\text{-}e}$	$40.5_{f\text{-}k}$	$4.0_{f\text{-}i}$	$1.1_{b\text{-}g}$	$32.2_{b\text{-}k}$	$85.5_{a\text{-}d}$	55.11_{ab}	$745_{a\text{-}e}$
DP 1646 B2XF	$1340_{a\text{-}e}$	$42.0_{a\text{-}h}$	$4.4_{b\text{-}h}$	1.2_{bcd}	$32.6_{a\text{-}k}$	$84.0_{a\text{-}f}$	55.01_{ab}	$737_{a\text{-}f}$
PHY 495 W3RF	$1330_{a\text{-}e}$	$41.9_{b\text{-}h}$	$4.3_{b\text{-}i}$	1.0_{n}	$33.3_{a\text{-}j}$	$84.1_{a\text{-}f}$	53.31_{b}	$709_{a\text{-}f}$
PHY 444 WRF	$1320_{a\text{-}e}$	$41.2_{d\text{-}h}$	3.5_{j}	1.2_{a}	$34.5_{a\text{-}e}$	86.2_{a}	54.70_{ab}	$721_{a\text{-}f}$
PHY 499 WRF	$1310_{a\text{-}e}$	$41.1_{d\text{-}i}$	$4.5_{a\text{-}g}$	$1.1_{g\text{-}n}$	35.5_{a}	86.2_{a}	55.05_{ab}	$721_{a\text{-}f}$
DP 1614 B2XF	$1297_{a\text{-}e}$	$42.7_{a\text{-}f}$	5.0_{a}	$1.1_{c\text{-}l}$	$32.6_{a\text{-}k}$	$84.7_{a\text{-}f}$	53.39_{ab}	$693_{a\text{-}f}$
DG 3385 B2XF	$1294_{a\text{-}e}$	$40.1_{g\text{-}m}$	$4.5_{a\text{-}g}$	$1.1_{c\text{-}m}$	$30.9_{h\text{-}l}$	$85.4_{a\text{-}d}$	54.81_{ab}	$709_{a\text{-}f}$
DG 3526 B2XF	$1292_{a\text{-}e}$	44.5_{a}	$4.7_{a\text{-}e}$	1.0_{mn}	$30.8_{i\text{-}l}$	$84.1_{a\text{-}f}$	53.60_{ab}	$691_{a\text{-}f}$
CT 15445 B2RF	$1289_{a\text{-}e}$	$40.1_{g\text{-}m}$	$4.1_{f\text{-}i}$	$1.1_{c\text{-}l}$	35.0_{abc}	$85.0_{a\text{-}e}$	55.10_{ab}	$710_{a\text{-}f}$
NG 5007 B2XF	$1269_{a\text{-}e}$	$41.5_{c\text{-}h}$	$4.4_{b\text{-}h}$	$1.1_{g\text{-}n}$	28.8_{l}	$83.4_{c\text{-}f}$	54.41_{ab}	$690_{a\text{-}f}$
CPS 14WSTR-747	$1254_{a\text{-}e}$	$42.2_{a\text{-}g}$	$4.3_{b\text{-}h}$	$1.1_{g\text{-}n}$	29.7_{kl}	83.1_{def}	54.51_{ab}	$684_{a\text{-}f}$

CPS 14WSTR-262 B2RF	1251_{a-e}	44.4_{a}	4.4_{b-h}	1.0_{mn}	31.3_{e-l}	84.6_{a-f}	53.36_{ab}	672_{a-g}
FM 1953 GLTP	1246_{a-e}	37.9_{lmn}	4.0_{g-j}	1.2_{b-g}	32.6_{a-k}	85.3_{a-d}	55.16_{a}	687_{a-f}
DP 1522 B2XF	1224_{b-e}	40.4_{f-l}	4.5_{a-g}	1.1_{f-n}	33.4_{a-j}	85.0_{a-e}	54.88_{ab}	672_{a-g}
UA 103	1213_{b-f}	38.0_{lmn}	4.5_{a-g}	1.2_{ab}	34.9_{a-d}	85.9_{abc}	55.16_{a}	669_{b-g}
BX 1774 GLTP	1210_{b-f}	37.4_{n}	3.9_{hij}	1.1_{b-h}	30.6_{jkl}	84.1_{a-f}	54.94_{ab}	665_{b-g}
PHY 222 WRF	1208_{b-f}	38.4_{k-n}	4.4_{b-h}	1.1_{d-}	32.6_{a-k}	85.0_{a-e}	54.93_{ab}	664_{b-g}
FM 1830 GLT	1203_{b-t}	40.9_{e-j}	4.5_{a-g}	1.2_{ab}	32.9_{a-k}	85.6_{a-d}	55.08_{ab}	662_{b-g}
ST 6182 GLT	1193_{b-f}	43.9_{abc}	4.7_{a-d}	1.1_{c-m}	31.0_{g-l}	84.7_{a-f}	54.15_{ab}	646_{b-g}
AMX 1601 B2XF	1182_{b-f}	42.8_{a-f}	4.8_{ab}	1.1_{e-n}	34.0_{a-i}	84.5_{a-f}	54.86_{ab}	648_{b-g}
PHY 243 WRF	1173_{b-f}	39.7_{h-n}	3.8_{ij}	1.1_{b-g}	31.7_{d-l}	83.1_{def}	54.84_{ab}	643_{b-g}
FM 2007 GLT	1171_{b-f}	37.4_{n}	4.0_{g-j}	1.1_{b-h}	31.2_{f-l}	83.6_{b-f}	54.85_{ab}	642_{b-g}
MON 15R535 B2XF	1165_{b-f}	43.6_{a-d}	4.5_{b-g}	1.1_{h-n}	30.5_{jkl}	82.5_{ef}	54.46_{ab}	634_{b-g}
MON 15R556 B2XF	1140_{b-f}	44.1_{ab}	4.2_{d-i}	1.1_{j-n}	31.9_{c-l}	83.4_{c-f}	54.21_{ab}	619_{c-g}
DG 3544 B2XF	1116_{c-f}	38.1_{k-n}	4.7_{abc}	1.2_{b-f}	35.8_{a}	86.1_{ab}	54.51_{ab}	608_{d-g}
DP 1219 B2RF	1088_{c-f}	38.7_{i-n}	4.4_{b-h}	1.1_{j-n}	31.6_{d-l}	82.2_{f}	54.14_{ab}	590_{d-g}
FM 1900 GLT	1088_{c-f}	38.2_{k-n}	4.4_{b-g}	1.2_{bc}	35.3_{ab}	84.8_{a-e}	55.06_{ab}	599_{d-g}
UA222	1081_{c-f}	38.0_{k-n}	4.3_{b-i}	1.2_{b-e}	34.2_{a-g}	84.8_{a-e}	55.06_{ab}	595_{d-g}
ST 4949 GLT	1077_{c-f}	43.8_{abc}	4.4_{b-h}	1.0_{mn}	31.1_{g-l}	83.8_{a-f}	53.43_{ab}	576_{efg}
DP 1044 B2RF	1066_{def}	38.1_{k-n}	4.1_{e-i}	1.1_{k-n}	31.2_{f-l}	83.3_{c-f}	54.25_{ab}	579_{d-g}
DG 2615 B2RF	1060_{def}	38.6_{j-n}	4.3_{b-i}	1.1_{c-m}	33.3_{a-j}	83.4_{c-f}	54.88_{ab}	582_{d-g}
FM 1911 GLT	1042_{def}	39.6_{h-n}	4.2_{c-i}	1.1_{c-j}	33.0_{a-k}	84.9_{a-e}	55.08_{ab}	574_{efg}
BX 1739 GLT	1036_{def}	41.2_{d-h}	4.7_{abc}	1.1_{b-g}	33.3_{a-j}	84.8_{a-e}	54.95_{ab}	569_{efg}
DG 3445 B2XF	1034_{def}	37.6_{mn}	4.2_{c-i}	1.1_{c-k}	34.0_{a-i}	84.0_{a-f}	55.00_{ab}	569_{efg}
DP 1553 B2XF	1015_{ef}	42.0_{a-h}	4.4_{b-g}	1.1_{d-}	31.7_{d-l}	84.3_{a-f}	54.83_{ab}	557_{fg}
ALLTex Concho	886_{f}	37.7_{mn}	4.0_{g-j}	1.1_{b-i}	34.4_{a-f}	84.3_{a-f}	55.08_{ab}	488_{g}
Mean	1214	40.6	4.3	1.16	32.6	84.5	54.62	663
P>F	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
HSD (P=.05)	338.36	2.4904	0.53136	0.0617	3.3384	2.559	1.8201	188.29
STD DEV	177.09	2.32	0.33	0.05	1.96	1.26	0.78	97.12
CV%	14.58	5.71	7.58	4.10	6.01	1.50	1.43	14.64

1 Lint values were calculated using the 2016 Upland Cotton Loan Valuation Model from Cotton Incorporated.

AT =AllTex, ATX = AllTexExperimental, DP=DeltaPine, DPX = DeltaPine Experimental, DG= DynaGrow, FM=FiberMax, NG=NexGen, PHY=Phytogen, PX = Phytogen Experimental, SSG= Seed Source Genetics, ST= Stoneville

Replicated Agronomic Cotton Evaluation Trial Summary Across Nueces County Locations 2016

Lawhon Farm – County Road 73B, Concordia
Massey Farm – FM 2826, Robstown
Texas A&M Research and Extension Center – FM 44, Corpus Christi

Table 1. Relative yield comparison of cotton varieties across test locations in Nueces County, TX.

	-----Relative Yield %*-----			
Variety	**Lawhon**	**Massey**	**TAMREC**	**AVG**
PHY 312 WRF	99	98	100	99
PHY 333 WRF	93	100	97	97
PHY 444 WRF	100	89	88	92
DP 1646 B2XF	98	87	91	92
NG 5007 B2XF	85	90	96	90
DG 3526 B2XF	94	86	88	89
ST 6182 GLT	87	84	87	86
ST 4848 GLT	90	84	82	85
DP 1522 B2XF	85	86	80	84
FM 2007 GLT	72	78	81	77

*Relative yield is presented for each variety where the highest yielding variety by location is set at 100%

Comparitive Yield of Cotton At Various Planting Densities

Texas A&M AgriLife Extension Service
Nueces County, 2016

Cooperator: Darrell Lawhon

Authors: J.P. Ott and J.A. McGinty

Summary

This test was located on the Darrell Lawhon Farm on County Road 73B, north of Concordia. Soil moisture conditions at planting were good and rainfall during the growing season was above normal. The cotton variety PHY 333 WRF was evaluated for yield performance at various planting densities. Plant populations of 33,223, 40,732, and 46,311 plants per acre were established and were statistically different from one another. The average lint yield for this test was 1,269 pounds per acre. There was not a statistical difference in lint yield between the three plant population densities.

Objective

To evaluate the performance of a commercially available cotton variety at various planting densities growing under Nueces County conditions.

Materials and Methods

The effect of varying planting densities on lint yield was evaluated during the 2016 growing season at the Darrell Lawhon Farm near Concordia in Nueces County, Texas on a Victoria Clay soil with the cotton variety PHY 333 WRF. The experimental design was a randomized complete block with three plant densities as treatments replicated three times. Plots consisted of twelve rows on 38-inch centers and a length of 2,979 feet.

The test was planted into good moisture on March 28 into a conventional-tilled field. Treflan, at a rate of 1 qt/A, had previously been applied and incorporated. A pre-plant fertility application of 63-13-0 lbs N-P-K per acre was also applied to the test area. The test location was kept weed-free using cultivation and postemergence herbicide during the growing season. Rainfall was recorded at the field during the growing season and totaled 13.61 inches.

Plots were harvested on August 12 using a John Deere 7760 Picker. A bale module was wrapped for each individual plot and weighed on a platform scale. Gin out of 41.1% and loan value of 55.15 ¢/lb was estimated based on the performance of PHY 333 WRF in the Replicated Agronomic Cotton Evaluation Trial adjoining this test and grown under the same conditions.

Results and Discussion

The data table (Table 1) below provide comparison of data on lint yield, as well as, the final plant population and return above seed cost for each seeding rate involved in this test.

Table 1. Comparison of cotton lint yield between varying cotton plant populations of PHY 333WRF, Lawhon Farm, Nueces County, Texas, 2016.

Planter Gear Setting	Target Plants/A	Seed Cost* ($/A)	Plants/A	Lint Yield (lb/A)	Return Above Seed Cost ($/A)
20-27	33,600	49.67	36,223	1,270	650.66
24-27	41,100	60.76	40,732	1,239	622.36
29-26	49,800	73.62	46,311	1,297	641.88
Mean			41,089	1,269	638.30
C.V.			4.12	5.93	6.50
L.S.D. 0.05			3,834	NS	NS

*Assuming seed cost of $340 per 230,000 seed.

Conclusions

There were no significant differences in lint yield among the three treatments; though there was a 27 pound per acre numeric yield advantage for the 49,800 plants/A treatment over the 33,600 plants/A treatment. However when seed cost is considered, the 33,600 plants/A treatment showed an economic advantage of $8.78 per acre over the 49,800 plants/A treatment and reduced upfront seed cost by nearly a third.

Acknowledgements

The cooperation and support of Darrell Lawhon for implementing this trial is greatly appreciated. In addition, special thanks to J.R. Cantu, Nueces County Demonstration Assistant, for assisting with data collection.

Nueces County

Sorghum Result Demonstrations

HISTORY OF SORGHUM PRODUTION
NUECES COUNTY 1961-2016

Year	Total Acres Harvested	CWT /Acre	Total (1000 CWT) Production	Year	Total Acres Harvested	CWT /Acre	Total (1000 CWT) Production
1961	179,000	21.28	3,809	1997	204,606	47.00	9,619
1962	141,000	14.00	1,974	1998	190,832	30.00	5,725
1963	191,000	17.02	3,255	1999	184,306	44.00	8,110
1964	296,400	21.34	4,190	2000	177,200	34.00	6,025
1965	204,200	40.21	8,251	2001	122,600	44.00	5,395
1966	223,000	28.73	6,404	2002	187,000	35.00	6,545
1967	250,000	24.53	6,132	2003	179,800	49.00	8,810
1968	223,800	28.01	6,269	2004	163,500	46.00	7,521
1969	228,700	28.56	6,530	2005	157,300	33.46	5,264
1970	238,900	32.33	7,724	2006	92,400	15.68	1,437
1971	213,900	23.86	5,104	2007	184,000	38.64	7,110
1972	188,200	30.74	5,785	2008	188,900	36.96	6,982
1973	280,000	27.50	7,700	2009	49,800	22.40	1,115
1974	299,900	31.86	9,452	2010	183,430	47.30	8,676
1975	294,400	28.00	8,243	2011	141,867	38.00	5,390
1976	275,000	28.00	7,700	2012	140,100	33.70	4,721
1977	260,000	26.88	6,978	2013	105,168	17.36	1,826
1978	227,000	27.33	6,204	2014	154,600	31.64	4,894
1979	240,300	32.24	7,747	2015	205,600	32.20	6,620
1980	243,000	28.71	6,978	2016	159,810	48.00	7,671
1981	279,600	37.34	10,440	2017			
1982	270,000	36.43	9,837	2018			
1983	149,000	31.13	4,639	2019			
1984	267,200	31.93	8,532	2020			
1985	189,500	41.23	7,813	2021			
1986	154,400	36.05	5,566	2022			
1987	115,000	41.09	4,725	2023			
1988	114,800	32.18	3,694	2024			
1989	175,700	31.00	5,447	2025			
1990	184,622	26.00	4,987	2026			
1991	177,500	35.00	6,212	2027			
1992	185,000	32.00	5,920	2028			
1993	147,590	44.00	6,418	2029			
1994	155,654	32.00	4,981	2030			
1995	101,805	43.00	4,378	2031			
1996	175,000	17.00	2,975	2032			

Data secured from U.S. Department of Agriculture Statistical Reporting Service and Texas Crop Livestock Reporting Service.

Figures for the 2013 and 2016 seasons were estimated using data obtained from the Nueces County FSA Office, and the Nueces County Extension Office

Grain Sorghum Hybrid Performance Evaluation

Texas A&M AgriLife Extension Service
Nueces County, 2016

Cooperator: Ordner Farms

Author: J.P. Ott

Summary

This test was located on the Ordner Farm in Petronilla on County Road 69. Soil moisture conditions at planting were excellent. Rainfall was above average during the growing season. Six sorghum hybrids were evaluated for agronomic performance. The best performing hybrid numerically in this test was DeKalb DKS53-67 at 5,986 pounds per acre, although it did not differ statistically from DeKalb DKS 51-01 or Pioneer 83P99 yielding 5,943 and 5,887 pounds per acre, respectively. The test average was 5,661 pounds per acre.

Objective

To evaluate commercially available grain sorghum hybrids growing under Nueces County conditions in a replicated evaluation.

Materials and Methods

The effect of grain sorghum hybrids on grain yield was evaluated during the 2016 growing season at the Ordner Farm near Petronilla in Nueces County, Texas on a Victoria Clay soil. The experimental design was a randomized complete block with six hybrid treatments and three replications. Plots consisted of twelve rows on 30-inch centers and a length of 1,815 feet.

All hybrids were planted into excellent moisture on February 15 into a conventional-tilled field. For pre-emergent weed control 10oz of Peak and 1lb of Atrazine were applied per acre. A pre-plant fertility application of 66-33-0 per acre was also applied to the test area. Rainfall was recorded at the field during the growing season and totaled 17.67 inches.

Plots were individually harvested and weighted on June 28 using conventional field equipment and an electronic weight wagon. Sub-samples were collected from each plot to determine grain moisture content and bushel weight. Additionally, plant populations, days to 50% flowering, and plant height were also collected from each plot.

Results and Discussion

The data table (Table 1) below provides a comparison of data on plant population, days to 50% flowering, plant height, grain moisture content, bushel weight, and yield.

Table 1. Comparison of plant population, days to 50% flowering, plant height, grain moisture content, bushel weight, and yield between hybrids, Ordner Farm, Nueces County, Texas, 2016.

Hybrid	Plants/A	Days to 50% Flower	Plant Height Inches	% Moisture	Test Weight lb/bu	Yield lb/A*
DeKalb DKS53-67	46, 787	78	49	14.0	58.0	5,986
DeKalb DKS51-01	44,528	77	52	13.2	58.7	5,943
Pioneer 83P99	46,132	80	45	13.5	59.0	5,887
Alta AG3201	42,592	73	45	12.9	54.7	5,764
Terral RV9562	42,915	76	45	13.0	55.7	5,261
DynaGro 75GR47	49,045	74	45	13.1	55.3	5,123
Mean	45,333	76	47	13.3	56.9	5,661
C.V.	6.80	0.98	3.20	3.68	3.48	1.93
L.S.D. 0.05	NS	1.4	2.7	NS	NS	198.6

* Yields corrected to 14% moisture

Conclusions

Using a market price of $6.00 per hundred weight, the top yielding hybrid had a gross value of $359.16 per acre while the least productive hybrid was valued at $307.38, reflecting a difference of $51.78 per acre. This significant difference between hybrids illustrates the importance of hybrid selection on farm profitability and the importance of evaluating hybrids under local conditions.

Acknowledgements

The cooperation and support of Bill Ordner, Scott Ordner, Shane Suggs, and the staff at Ordner Farms for implementing this trial is appreciated. The support of cooperating seed companies by providing needed seed supplies to conduct this evaluation is also appreciated. In addition, special thanks to J.R. Cantu, Nueces County Demonstration Assistant, for assisting with data collection. Moreover thank you to Monsanto for providing a weight wagon at harvest.

Grain Sorghum Hybrid Performance Evaluation

Texas A&M AgriLife Extension Service
Nueces County, 2016

Cooperator: Jerry Faske Farms

Author: J.P. Ott

Summary

This test was located on the Faske Farm west of Bishop on FM 666 between County Roads 14 and 16. Soil moisture conditions at planting were good. Rainfall was above average during the growing season. Twenty-seven sorghum hybrids were evaluated for agronomic performance. The best performing hybrid numerically in this test was DeKalb 51-01 at 6,472 pounds per acre, while the test average was 5,516 pounds per acre.

Objective

To evaluate commercially available grain sorghum hybrids growing under Nueces County conditions in a side-by-side evaluation.

Materials and Methods

The effect of grain sorghum hybrids on grain yield was evaluated in a side-by-side comparison with a tester hybrid Sorghum Partners 6929 planted through the test to account for field variability during the 2016 growing season at the Faske Farm near Bishop in Nueces County, Texas on a Victoria Clay soil. Twenty-seven sorghum hybrids were included in the test. Plots consisted of twelve rows on 36-inch centers and a length of 1,285 feet.

All hybrids were planted into good moisture on February 27 into a conventional-tilled field. For pre-emergent weed control 10.8 oz of Outlook were applied per acre. A pre-plant fertility application of 60-20-0-0.25(Zn) per acre was also applied to the test area; along with 1 quart of humate per acre. Rainfall was recorded at the field during the growing season and totaled 11.42 inches.

Plots were individually harvested and weighted on July 15 using conventional field equipment and an electronic weight wagon. Sub-samples were collected from each plot to determine grain moisture content and bushel weight. Additionally, plant populations and days to 50% flowering were also collected from each plot.

Results and Discussion

The data table (Table 1) below provides a comparison of data on plant populations, days to 50% flowering, grain moisture content, bushel weight, and yield.

Table 1. Comparison of plant population, days to 50% flowering, grain moisture content, bushel weight, and yield between hybrids, Faske Farm, Nueces County, Texas, 2016.

Company or Brand Name	Hybrid	Plants/A	Days to 50% Flower	% Moisture	Test Weight lb/bu	Yield lb/A*
DeKalb	51-01	50,820	76	9.2	56	6,472
DeKalb	53-53	46,787	78	13.2	60	6,092
Pioneer	83G19	43,560	73	13.0	57	6,087
Alta	AG3201	42,753	75	9.5	57	5,985
Pioneer	84P80	49,207	77	12.4	58	5,968
Sorghum Partners	SP 6929	50,013	77	13.3	57	5,857
DeKalb	53-67	44,367	78	13.3	61	5,715
Sorghum Partners	SP7715	37,913	76	13.3	59	5,715
DeKalb	48-07	42,753	78	13.4	60	5,568
Golden Acres	3960 B	44,367	76	13.0	58	5,563
Golden Acres	X-2614	39,527	76	13.4	61	5,528
Sorghum Partners	K73-J6	41,947	74	12.3	55	5,512
Sorghum Partners	68M57	49,207	75	13.3	62	5,506
Terral	9562	45,980	76	12.4	52	5,506
Golden Acres	5556	50,013	75	13.7	60	5,367
Sorghum Partners	X-16415	45,980	76	12.7	55	5,367
Sorghum Partners	70B17	45,173	74	13.1	57	5,351
Golden Acres	3637	46,787	75	13.4	59	5,338
Sorghum Partners	K73-J6 Trt	49,207	76	12.1	55	5,313
Golden Acres	3970 R	48,400	75	13.1	57	5,243
Sorghum Partners	X-16414	46,787	73	13.1	59	5,214
Dynagro	M75GR47	55,660	74	12.6	57	5,160
DeKalb	37-07	43,560	73	13.2	62	5,132
Golden Acres	X-2576	43,560	77	13.3	57	5,130
Golden Acres	5613	50,013	74	13.0	59	5,106
Sorghum Partners	X-15115	42,753	75	13.1	60	5,090
Sorghum Partners	X-15715	40,333	73	12.8	59	5,003
Mean		**45,312**	**76**	**12.8**	**58.2**	**5,516**

* Yields corrected to 14% moisture. The yields are also adjusted using accuracy testing to account for field variation.

Conclusions

Using a market price of $6.00 per hundred weight, the top yielding hybrid had a gross value of $388.32 per acre while the least productive hybrid was valued at $300.18, reflecting a difference of $88.14 per acre. This significant difference between hybrids illustrates the importance of hybrid selection on farm profitability and the importance of evaluating hybrids under local conditions.

Acknowledgements

The cooperation and support of Jerry Faske, James Faske, and the staff at Faske Farms for implementing this trial is appreciated. The support of cooperating seed companies by providing needed seed supplies to conduct this evaluation is also appreciated. In addition, special thanks to J.R. Cantu, Chris Cernosek, Ramon Alvarez, and Danny Gonzales for assisting with data collection. Moreover thank you to Sorghum Partners for providing a weight wagon at harvest.

2016 Hybrid Evaluations for Resistance to the Sugarcane Aphid

Texas A&M AgriLife Research and Extension Center
Corpus Christi, Texas
2016

Robert Bowling, John Gordy, Michael Brewer, Allen Knutson and David Olsovsky

Summary

On October 6, 2016 a field trial was planted at the Texas A&M AgriLife Research and Extension Center (Corpus Christi) to evaluate tolerance (resistance) in eight sorghum hybrids designated as "highly tolerant" to sugarcane aphid (SCA) when compared with two SCA susceptible hybrids. Each plot was divided into two subplots of four rows each. The center two rows of one subplot were treated with insecticide to control SCAs while the second subplot was not treated. On November 21 SCA populations were near the ET on the two SCA susceptible hybrids and sub-plots designated as 'sprayed' were treated with Sivanto (4 oz/a). SCA were present on sorghum "highly tolerant" to SCA but these populations were well below the ET. Aphid populations on SCA susceptible hybrids continued to increase to large numbers whereas only small population or no SCA were observed on "highly tolerant' hybrids not treated with an insecticide. SCA populations were very low to undetectable on all hybrids treated with Sivanto. SCA induced plant damage was highest and head emergence lowest on the susceptible hybrids not treated with an insecticide but plant damage was low to undetectable and normal head emergence in all "highly tolerant" hybrids. SCA induced feeding injury was not detectable on any of the hybrids when treated with Sivanto. Results of this trial support seed company designations of SCA tolerance. Results of the study also demonstrate the value of a well-timed insecticide application on protect sorghum from damage by SCA.

Introduction

Sugarcane aphid (SCA) management on sorghum has been primarily through economic thresholds and insecticide applications. A few commercial hybrids designated as resistant or 'highly-tolerant' have been used to minimize damage caused by SCA.

Commercial sorghum hybrids resistant to SCA continue to reach the market with little confirmation of resistance from academia. Research and extension entomologist in the United States have established sorghum screening trials to verify SCA resistance previously reported by various seed companies.

Objective

The objectives of this study were to 1) determine tolerance (resistance) in select commercial sorghum hybrids designated by seed companies as "highly tolerant" to SCA and 2) determine hybrid response to SCA in an "aphid-free" (with insecticide treatment) environment compared to the same set of hybrids not treated with an insecticide.

Material and Methods

On October 6, 2016 an SCA trial was planted at the Texas A&M AgriLife Research and Extension Center (Corpus Christi) to evaluate tolerance (resistance) in eight sorghum hybrids designated by seed companies as "highly tolerant" to sugarcane aphid (SCA). Tolerant sorghum entries included SP73B12, SP78M30, SP7715 (Sorghum Partners), BH4100 (B&H Genetics), W7051 (Warner), and DKS37-07 and DKS48-07 (Monsanto). Two SCA susceptible hybrids, DKS38-88 and DKS53-67 (Monsanto), also were included in this trial. All hybrids had Concep III (Syngenta) and fungicide seed treatments. Roundup WeatherMAX® (Monsanto) was applied at 28 oz/A was applied prior to planting. On October 19 the trial was treated with iron to ameliorate iron chlorosis issues.

The trial was sown with a JD7100 4-row planter at a seeding rate equivalent to 52,500 seeds per acre with each plot measuring 8-38in. x 35 ft rows. Each hybrid was planted to four plots (replications) in a randomized complete block design. Each plot was divided into two subplots of four rows each. The center two rows of one subplot were treated with insecticide to control SCAs while the second subplot was not treated. The experimental design was a factorial with hybrid as the main plot and insecticide treated or untreated as the subplot. This allowed a direct comparison of head emergence with and without SCA control for each hybrid.

SCA infestations were sampled by estimating the number of aphids per leaf on one bottom leaf and one upper leaf on 5 plants in each of the center two rows of each subplot, for a total of 10 plants and 20 leaves sampled per plot. The bottom leaf was the lowest leaf which was 90% green. The upper leaf was the top leaf but once the flag leaf was present, the upper leaf was the leaf below the flag leaf. Aphids were sampled on November 21, December 13 and 28. Sivanto (Bayer Crop Science) insecticide was applied at a rate of 4 oz/A in 13 gallons of water/acre to the insecticide subplots on November 21 using a backpack sprayer. The use of TII spray nozzles and the two untreated border rows on each side of the treated plot served to reduce spray drift into the untreated subplot. Leaf damage due to SCA feeding was assessed on December 21 using a scale of 1-9 with 1= no damage, 2=1-5%, 3=5-20%, 4= 21-35%, 5=36-50%, 6=51-65%, 7=66-80%, 8=81-95%, 9=95-100%. The number of plants and sorghum heads from rows 2 (not-treated) and 6 (insecticide treated) were counted in in each plot to determine percent head emergence. A freeze on January 6, 2017 killed the top growth and the experiment was terminated.

Results

SCA Assessments on Sorghum:

Initial SCA counts were made on November 21, 2016 when sorghum growth ranged from V-8 to Boot-stage development. There were significant differences in SCA populations among hybrids ($F_{9,57}$=3.93; P=0.0120). The largest number of SCA occurred on the susceptible sorghum hybrids, DKS38-88 and DKS53-67. Plots designated as "aphid-free" were sprayed with Sivanto following these counts although the threshold of 50-125 aphids/leaf was not observed on any of the hybrids (Fig. 1). The insecticide treatment was based on SCA population growth and the time to the next counts in this trial. Each hybrid in the study was treated with an insecticide to normalize potential influences the insecticide may have on sorghum growth and development.

The second and third SCA assessments occurred on Dec. 13, 2016. Hybrid ($F_{9,38}$=5.04; P=0.0002) ($F_{9,38}$=26.38; P<0.0001) and insecticide ($F_{1,38}$=13.85; P=0.0006) ($F_{9,38}$=5.02; P=0.0002) treatments had a significant effect on SCA populations and there was a significant hybrid and spray treatments ($F_{9,38}$=5.02; P=0.0002) ($F_{9,18}$= 5.27; P<0.0001) interaction on December 13 and 21, respectively. Therefore, hybrid effect on SCA populations will be analyzed separately from spray treatments (no insecticide/insecticide applied) for each assessment date. SCA populations differed among hybrids when not treated with an insecticide ($F_{9,18}$= 5.02; P=0.0002) ($F_{9,18}$= 24.77; P<0.0001) but the effect did not occur when the hybrids were treated with an insecticide ($F_{9,18}$= 1.86; P=0.1262) ($F_{9,18}$= 1.26; P=0.3218) on December 13 and 21, respectively (Fig. 2 and 3).

Plant Damage:

Hybrid ($F_{9,57}$=19.75; P<0.0001) and insecticide ($F_{1,57}$=48.79; P<0.0001) treatments had a significant effect on plant damage cause by SCA and there was a significant interaction between hybrid and spray treatments ($F_{9,57}$=13.94; P<0.0001). Therefore, hybrid effect on plant damage caused by SCA will be analyzed separately from spray treatments (no insecticide/insecticide applied). Hybrids designated as susceptible to SCA had significantly more SCA induced plant damage compared with sorghum hybrids designated by seed companies as "highly tolerant" to SCA in sub-plots not sprayed with an insecticide ($F_{9,27}$=25.76; P<0.0001) (Fig. 4). There was no statistical difference in plant damage among sorghum hybrids designated as "highly tolerant" to SCA. Statistical differences in plant damage among hybrids did not occur in sub-plots receiving an application of Sivanto ($F_{9,27}$=1.0; P<0.4635) (Fig 4).

Head Emergence:

Hybrid ($F_{9,57}$=14.80; P<0.0001) and insecticide ($F_{1,57}$=23.49; P<0.0001) treatments had a significant effect on head emergence and there was a significant interaction between hybrid and spray treatments ($F_{9,57}$=11.90; P<0.0001). Therefore, hybrid effect on head emergence will be analyzed separately from spray treatments (no insecticide/insecticide applied). Hybrids designated as susceptible to SCA had significantly fewer heads compared with sorghum hybrids designated by seed companies as "highly tolerant" to SCA in sub-plots not sprayed with an insecticide ($F_{9,27}$=18.27; P<0.0001). There was no statistical difference in the number of heads among sorghum hybrids designated as "highly tolerant" to

SCA. Statistical differences in head counts among hybrids did not occur in sub-plots receiving an application of Sivanto ($F_{9,27}$=0.81; P<0.6092) (Fig 5).

Conclusion

The number of heads among sorghum hybrids "highly tolerant" to SCA were not different but head emergence was greatly reduced in sorghum susceptible to SCA when not treated with Sivanto. Head counts on SCA susceptible hybrids were not different from "highly tolerant" hybrids where a timely application of Sivanto was made.

Sorghum hybrids "highly tolerant" to SCA had little to no visible signs of plant injury by SCA whereas SCA susceptible sorghum was severely damaged by SCA when not treated with Sivanto. The damage to susceptible hybrids was not observed in SCA hybrids when a timely application of Sivanto was applied. This research demonstrates the value of tolerance (resistance) in protecting plants from damage by SCA but also suggests that same level of protection can be achieved by scouting and timely insecticide application once SCA populations reach a threshold.

Figure 1: November 21, 2016 SCA population estimates per sampled leaf on select sorghum hybrids designated as resistant or susceptible to SCA (Corpus Christi)

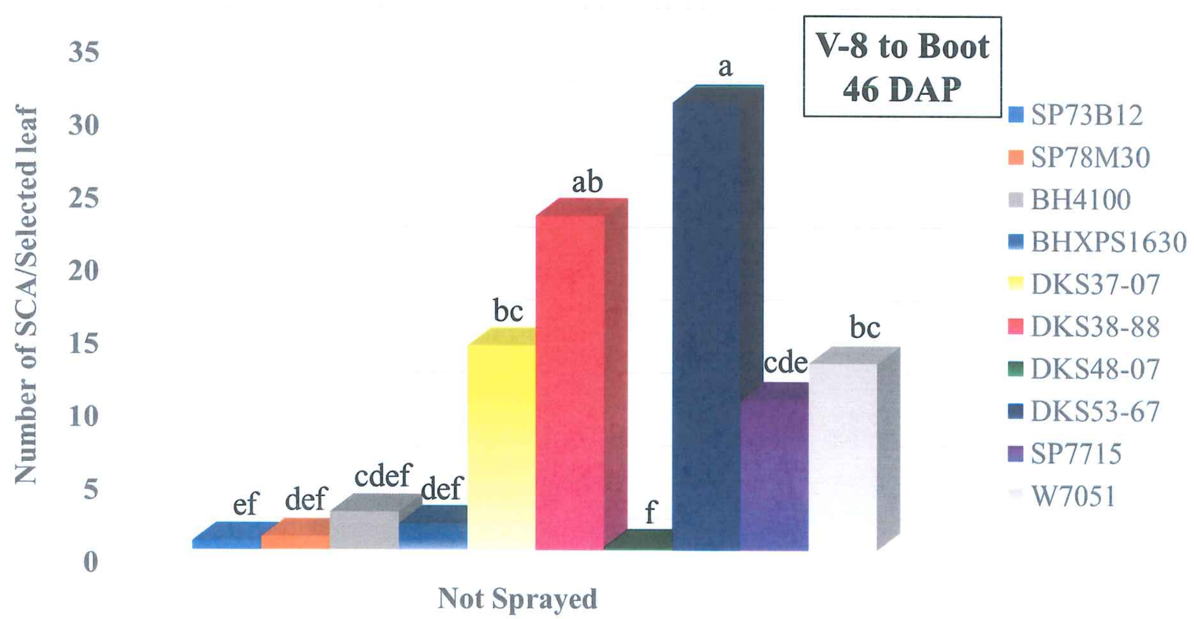


Figure 2: December 13, 2016 SCA population estimates per sampled leaf on select sorghum hybrids designated as resistant or susceptible to SCA (Corpus Christi)

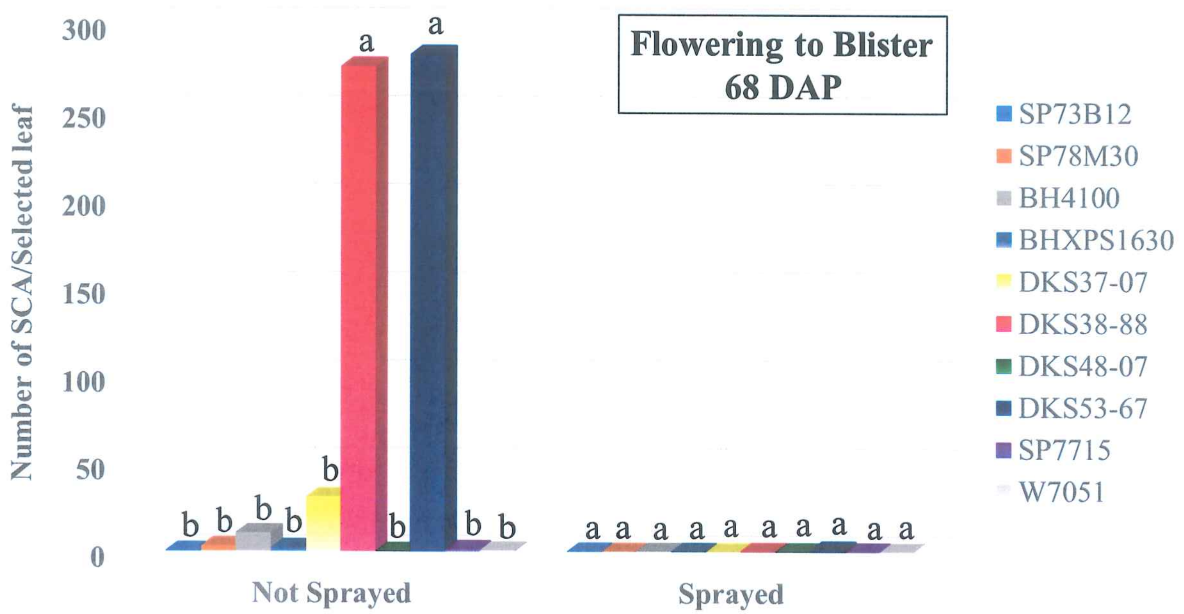
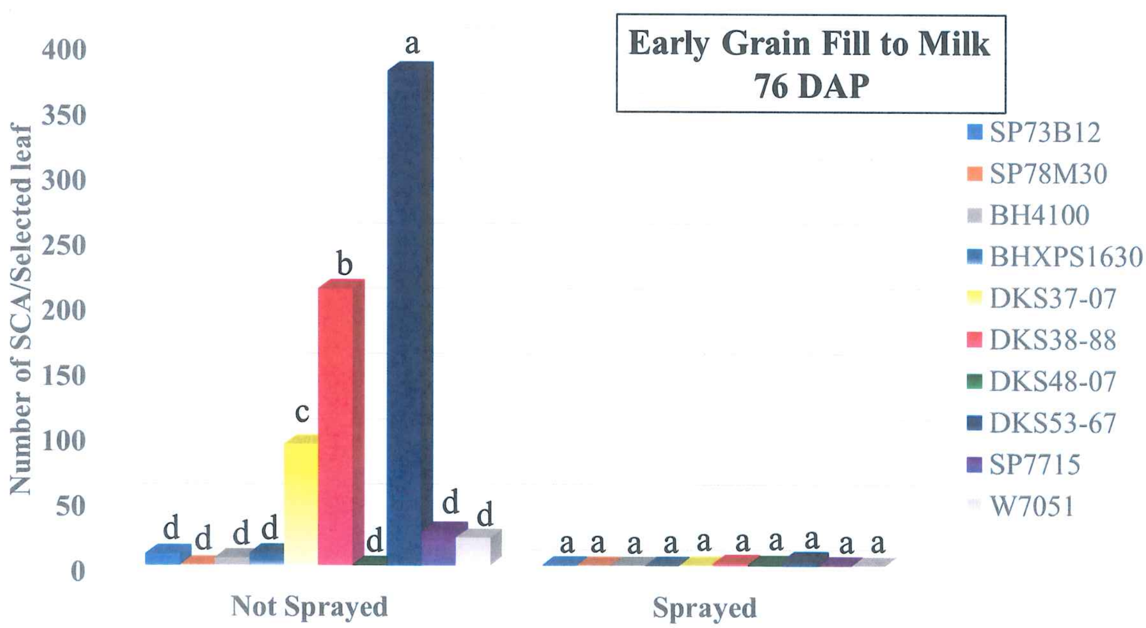


Figure 3: December 21, 2016 SCA population estimates per sampled leaf on select sorghum hybrids designated as resistant or susceptible to SCA (Corpus Christi)



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.

TEXAS A&M AGRILIFE EXTENSION

Small Plot Evaluation of Sugarcane Aphid Tolerance in Sorghum

Texas A&M AgriLife Extension Service
Nueces County, 2016

Cooperator: Jim Massey

Authors: Jason Ott and Robert Bowling

Summary

A growing number of company-designated sugarcane aphid (SCA)-tolerant sorghum hybrids are reaching the market. Sorghum producers may be hesitant to use SCA-tolerant sorghum because published research is lacking that documents SCA tolerance and product performance. The current demonstration attempts to document the value of commercial sorghum hybrids designated as 'Highly Tolerant' to SCA in limiting aphid growth and protecting yield potential in these hybrids. The current demonstration evaluates 15 hybrids for tolerance to SCA in a production field near Robstown, TX. Results of small plot evaluations showed sorghum hybrids SP7715, BH4100, AG1203, GX15484, and M60GB31 (Fig. 1A) had the fewest number of SCA supporting company designations of these hybrids as highly SCA tolerant.

Introduction

A growing number of company designated sugarcane aphid (SCA) tolerant sorghum hybrids are reaching the market. These products may offer sorghum producers a cost-effective strategy to manage SCA in-lieu of insecticides. SCA tolerant sorghum complements other IPM strategies such as cultural control and biological control. Insecticides can be used with tolerant sorghum hybrids if SCA populations reach economic populations. Sorghum producers may be hesitant to use SCA tolerant sorghum because published research is lacking to document SCA tolerance and product performance. The objective of this demonstration was to document the value of commercial sorghum hybrids designated as 'Highly Tolerant' to SCA in limiting aphid growth and protecting yield potential in these hybrids.

Materials and Methods

Seeds of 15 hybrids from five commercial seed companies were provided for this demonstration (Table 1). Seed was treated with Concept III, a fungicide, and an insecticide seed treatment. The demonstration was planted on February 20, 2016 in a commercial sorghum production field near Robstown, TX. The previous crop was sorghum and the field, a Victoria clay, was fertilized with 400 lbs. of 25-5-0, and Outlook® (BASF) herbicide at 12.5 oz. was applied to manage weeds. Each hybrid was planted at a rate of 44,000 seeds per acre in 8-30 in. x 120' long rows. Hybrids that had a clumped distribution of SCA were split into two small plot locations where one plot was aphid free and the other plots had large aphid populations. Hybrid assessments included SCA populations, leaf damage ratings (Table 2), test weight, and yield. Thirty consecutive plants from the second row of each plot were evaluated for SCA leaf injury. The percentage yield reduction and monetary loss was determined by comparing performance in aphid free and aphid infested plots.

Results

Sorghum hybrids SP7715, BH4100, AG1203, GX15484, and M60GB31 (Table 3) had the fewest number of SCA which supports company designations of these hybrids as 'Highly Tolerant' to SCA. Conversely, SP70B17, SP68M57, GX16667, M77GB52, and M75GB47 appeared to be susceptible based on SCA populations and plant injury observed in this demonstration (Table 3). Other entries showed moderate to and high tolerance to SCA (Table 3). Numerical differences in yield and test weight were observed among the hybrid entries, but it was not possible to determine if differences were, in part, from SCA or inherent for each hybrid (Table 3). The exceptions were susceptible hybrids in small plots infested with large populations of SCA that caused substantial injury to plants. SCA-induced damage reduced yields by 12% or more and potential income reductions by $30.00/acre or more (Tables 3 and 4).

Discussion

SCA tolerance by sorghum hybrids SP7715, BH4100, and AG1203 were consistent with several replicated trials in south and north central TX. Hybrids designated as having moderate to high SCA tolerance was based on comparisons of SCA populations on all hybrids in this demonstration. These hybrids could certainly be characterized as 'Highly Tolerant' to SCA due to the low number of aphids through the assessment time.

There were differences in SCA-induced plant injury among hybrids in this demonstration. Susceptible hybrids in small plots infested with large SCA populations resulted in moderate to severe leaf injury. Yield from these plots was reduced by 12 to 22% when compared with adjacent plots not infested with SCA (Table 4). Yield loss associated with SCA damage reduced income be approximately 30.00 to 45.00 dollars per acre depending on hybrid and the amount of plant damage (Table 4). Highly tolerant sorghum hybrids in this trial had small to no SCA and no visible injury by SCA (Table 3).

In this demonstration, 'Highly Tolerant' sorghum hybrids protected yield potential from damaging populations of SCA. The traits expressed by these hybrids prevented development of economic SCA populations thereby eliminating the need for and insecticide application ($12.00 to $18.00/a or more) and prevented economic injury observed in the susceptible hybrids ($30.00 to $45.00/a). These hybrids will offer producers an option to insecticides for SCA management in their sorghum.

ACKNOWLEDGEMENTS

The cooperation and support of Jim Massey, IV for implementing and managing this trial is appreciated. We thank Sorghum Partners, B&H Genetics, Dyna-Gro, Terral, and Alta for providing seed used in this demonstration. In addition, special thanks to J.R. Cantu, Daisy Castillo, Chris Cernosek, and Cord Willms for assisting with data collection.

Table 1: Sorghum hybrids used in this demonstration and associated companys supplying seed

Variety	Company
SP68M57	
SP70B17	Sorghum Partners
SP7715	
DG GX 16667	
DG M75GB47	
DG GX 15484	
DG GX 15371	dyna-Gro
DG M77GB52	
DG 766B	
DG M 60GB31	
RV 9562	
RV 9924	Terral
RV 9782	
BH 4100	B&H Genetics
AG 1203	Alta

Table 2: SCA leaf injury rating and corresponding description of injury.

Plant Injury Rating Number	Description of Leaf Injury
1	No apparent damage
2	Up to 10% of the foliage with signs of sugarcane aphid activity or injury including honeydew, sooty mold, and leaf spotting
3	Up to 10% of the foliage with signs of sugarcane aphid activity or injury including honeydew, sooty mold, and leaf spotting
4	From 21 to 40% of the foliage with signs of sugarcane aphid activity or injury
5	From 41 to 50% of the foliage with signs of sugarcane aphid activity or injury including honeydew, sooty mold, and leaf spotting
6	From 51 to 60% of the foliage with signs of sugarcane aphid activity or injury
7	From 61 to 70% of the foliage with signs of sugarcane aphid activity or injury including honeydew, sooty mold, and leaf spotting
8	From 71 to 80% of the foliage with signs of sugarcane aphid activity or injury including honeydew, sooty mold, and leaf spotting
9	From 81 to 90% of the foliage with signs of sugarcane aphid activity or injury
10	Greater than 90% of the foliage with signs of sugarcane aphid activity or injury

Table 3: In-field assessments of sorghum hybrids to SCA infestations in Banquete, TX (2016).

Response to SCA	Hybrid	Plant Injury Rating*	Test Wt. (lbs/a)	Yield
	SP68M57§	7	57	3486
	SP68M57	1	55	4486
	DG GX 16667	1	51	3495
	DG GX 16667§	4	52	3038
Susceptible	DG M 77GB52	4	53	3249
	DG M 75GB47	1	54	4449
	DG M 75GB47§	6	56	3909
	SP70B17	1	55	4478
	SP70B17§	6	57	3575
	DG CX 15371	1	55	4026
	DG 766B	1	56	4545
Moderate to	RV 9562	1	57	4422
Highly Tolerant	RV9924	1	57	5184
	RV9782	1	56	5259
	RV9782	2	55	4587
	SP7715	1	58	3606
	BH4100	1	51	3775
Highly Tolerant	AG1203	1	54	3125
	DG GX 15484	1	55	4380
	DG M 60GB31	1	56	3632

Table 2: In-field assessments of yield reduction associated with SCA damage to sorghum (Banquete, TX 2016).

Hybrid	Yield	Yield Reduction by SCA Damage (%)	Economic Loss (dollars/a)*
SP68M57	4486	22	44.50
SP68M57	3486		
DG GX16667	3495	13	29.49
DG GX16667	3038		
DG M75GB47	4449	12	35.22
DG M 75GB47	3909		
SP70B17	4478	20	38.89
SP70B17	3575		

*Based on sorghum market price of $6.45/cwt (Ag Market News Service, Amarillo, TX).

Large Plot Evaluation of Sugarcane Aphid Tolerance in Sorghum

Texas A&M AgriLife Extension Service
Nueces County, 2016

Cooperator: Jim Massey

Authors: Jason Ott and Robert Bowling

Summary

Since 2013, the sugarcane aphid (SCA), *Melanaphis sacchari* (Zehntner), has been a threat to sorghum production in south Texas. Host plant resistance is an IPM tactic that is complementary to other tactics including biological control and cultural practices with little to no additional costs to the farmer. Sorghum hybrids designated as 'Highly Tolerant' to sugarcane aphid are reaching the market with no published field data to support companies' claims. The current demonstration evaluates 15 hybrids for tolerance to SCA in a production field near Robstown, TX. Our results showed sorghum hybrids SP7715, BH4100, AG1203, GX15484, and M60GB31 (Fig. 1A) had the fewest number of SCA supporting company designations of these hybrids as highly SCA tolerant.

Introduction

Since 2013, the sugarcane aphid (SCA), *Melanaphis sacchari* (Zehntner), has been a threat to sorghum production in south Texas. Managing SCA on sorghum has primarily been through well timed insecticide applications. Although effective, insecticide applications add to production costs and lack of alternative management practices limits options for managing the aphid. Host plant resistance is an IPM tactic that is complementary to other tactics including biological control and cultural practices with little to no additional costs to the farmer. Sorghum hybrids designated as 'Highly Tolerant' to sugarcane aphid are reaching the market with no published field data to support companies claims. The current demonstration offers evidence of SCA tolerance in several sorghum hybrids.

Materials and Methods

Seeds of 15 hybrids from five commercial seed companies were provided for this demonstration (Table 1). Seed was treated with Concept III, a fungicide, and an insecticide seed treatment. The demonstration was planted on February 20, 2016 in a commercial sorghum production field near Robstown, TX. The previous crop was sorghum and the field, a Victoria clay, was fertilized with 400 lbs. of 25-5-0, and Outlook® (BASF) herbicide at 12.5 oz/A was applied to manage weeds. Each hybrid was planted at a rate of 44,000 seeds per acre in 8-30 in. x 2,897' long rows. Hybrid assessments included SCA populations, leaf damage ratings (Table 2), test weight, and yield. Sixty consecutive plants from each of two locations within each plot were evaluated for leaf damage.

Results

Sorghum hybrids SP7715, BH4100, AG1203, GX15484, and M60GB31 (Fig. 1A) had the fewest number of SCA which supports company designations of these hybrids as highly SCA tolerant. Conversely, SP68M57, GX16667, M77GB52, and M75GB47 appeared to be susceptible based on SCA populations observed in this demonstration (Fig 1C). Other entries in this demonstration showed moderate to and high tolerance to SCA (Fig 1B). SCA-induced plant damage was highest on sorghum hybrids designated as susceptible (Table 3). Numerical differences in yield and test weight were observed among the hybrid entries but it was not possible to determine if differences were, in part, from SCA or inherent for each hybrid (Table 3).

Discussion

SCA tolerance by sorghum hybrids SP7715, BH4100, and AG1203 were consistent with several replicated trials in south and north central TX. Hybrids designated as having moderate to high SCA tolerance was based on comparisons of SCA populations on all hybrids in this demonstration. These hybrids could certainly be characterized as 'Highly Tolerant' to SCA due to the low number of aphids through the assessment time.

There were differences in SCA-induced plant injury among hybrids in this demonstration. The low injury scores in susceptible sorghum suggests SCA were clumped and the overall impact of SCA on production was minimal. The clumped pattern is common for SCA on sorghum. However, highly tolerant sorghum hybrids in this trial reduced populations and no visible injury by SCA was observed. All hybrids had good to excellent yield so it is not likely that SCA had a significant impact on performance in this demonstration. However, this demonstration showed the benefit of hybrids with SCA tolerance by limiting aphid populations when compared with susceptible sorghum entries.

ACKNOWLEDGEMENTS

The cooperation and support of Jim Massey, IV for implementing and managing this trial is appreciated. We thank Sorghum Partners, B&H Genetics, Dyna-Gro, Terral, and Alta for providing seed used in this demonstration. In addition, special thanks to J.R. Cantu, Daisy Castillo, Chris Cernosek, and Cord Willms for assisting with data collection.

Table 1: Sorghum hybrids used in this demonstration and associated companys supplying seed

Variety	Company
SP68M57	
SP70B17	Sorghum Partners
SP7715	
DG GX 16667	
DG M75GB47	
DG GX 15484	
DG GX 15371	dyna-Gro
DG M77GB52	
DG 766B	
DG M 60GB31	
RV 9562	
RV 9924	Terral
RV 9782	
BH 4100	B&H Genetics
AG 1203	Alta

Table 2: SCA leaf injury rating and corresponding description of injury.

Plant Injury Rating Number	Description of Leaf Injury
1	No apparent damage
2	Up to 10% of the foliage with signs of sugarcane aphid activity or injury including honeydew, sooty mold, and leaf spotting
3	Up to 10% of the foliage with signs of sugarcane aphid activity or injury including honeydew, sooty mold, and leaf spotting
4	From 21 to 40% of the foliage with signs of sugarcane aphid activity or injury
5	From 41 to 50% of the foliage with signs of sugarcane aphid activity or injury including honeydew, sooty mold, and leaf spotting
6	From 51 to 60% of the foliage with signs of sugarcane aphid activity or injury
7	From 61 to 70% of the foliage with signs of sugarcane aphid activity or injury including honeydew, sooty mold, and leaf spotting
8	From 71 to 80% of the foliage with signs of sugarcane aphid activity or injury including honeydew, sooty mold, and leaf spotting
9	From 81 to 90% of the foliage with signs of sugarcane aphid activity or injury
10	Greater than 90% of the foliage with signs of sugarcane aphid activity or injury

Table 3: Sorghum hybrid performance including agronomic and SCA evaluations.

Response to SCA*	Variety	Plant Pop. (Plts/a)	Date of 50% Flower	Days to 50% Flower	Damage Rating[#]	Test Weight (bu/a)	Yield/Ac @14% (lbs/a)
Susceptible	SP68M57	46464	10-May	80	1.0	60.7	5441
	DG GX16667	41624	13-May	83	1.0	60.2	4555
	DG M75GB47	45496	5-May	75	1.7	59.0	4853
Moderately to Highly Tolerant	SP70B17	43560	9-May	79	1.0	59.9	5131
	DG GX15371	37752	9-May	79	3.2	62.6	5262
	DG M77GB52	42592	3-May	73	1.8	59.6	4816
	DG 766B	30008	5-May	75	1.0	60.3	4927
	RV9562	41624	5-May	75	3.5	60.9	5426
	RV9924	40656	6-May	76	1.0	60.8	5708
	RV9782	38720	4-May	74	1.0	60.9	5573
Highly Tolerant	SP7715	39688	9-May	79	1.2	60.9	5326
	BH4100	49368	9-May	79	1.0	61.5	5460
	AG1203	40656	11-May	81	1.0	61.4	5510
	DG GX15484	43560	12-May	82	1.0	61.3	5158
	DG M60GB31	38720	5-May	75	2.0	61.8	5332

*Response was based on the number of SCA observed on select plants counted over 6 consecutive weeks.
[#]Damage rating is on a 1-10 scale with a 1 representing no damage and a 9 representing a >90% of the foliage with signs of SCA activity or injury.

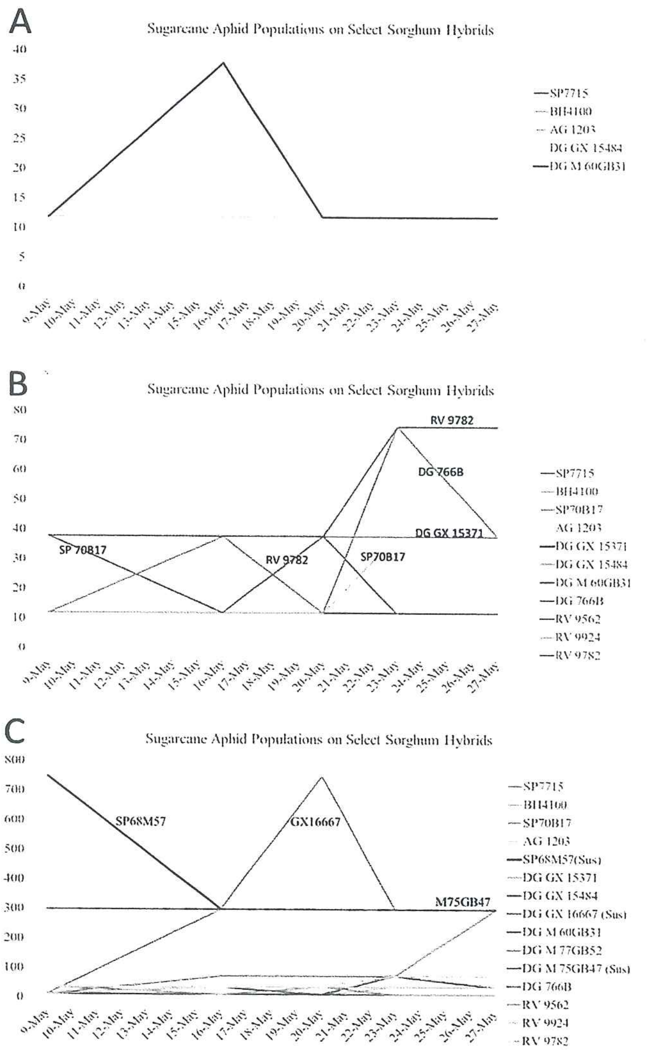


Fig 1: Hybrid response to SCA population growth in relation to tolerance and susceptibility.

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.

Nueces County

Corn Result Demonstrations

HISTORY OF CORN PRODUTION
NUECES COUNTY 1975-2016

Year	Total Acres Planted	Total Acres Harvested	Bushels /Acre	Total Production (Bushels)	Year	Total Acres Planted	Total Acres Harvested	Bushels /Acre	Total Production (Bushels)
1975	1,600	1,200	28	34,000	2007	10,300	10,000	88	880,000
1976	900	800	53	42,200	2008	5,500	5,400	41	220,000
1977	500	400	53	21,000	2009	9,309	2,312	25	57,800
1978	1,300	1,200	63	75,800	2010	9,867	9,866	97	957,022
1979	6,000	5,800	71	409,700	2011	12,500	10,000	45	448,000
1980	8,200	7,700	42	322,000	2012	3,167	1,529	30	45,870
1981	8,300	8,200	90	735,900	2013	12,300	3,100	35.5	110,000
1982	10,200	10,100	60	607,500	2014	17,000	16,600	56.6	939,000
1983	6,900	6,500	49	319,400	2015	19,800	19,500	63	1,219,000
1984	52,200	50,200	43	2,163,900	2016	37,000	36,586	118	4,317,148
1985	42,500	41,600	81	3,355,500	2017				
1986	31,500	30,200	73	2,200,000	2018				
1987	64,800	63,800	84	5,330,100	2019				
1988	69,900	66,400	40	2,656,000	2020				
1989	43,400	33,400	32	1,068,800	2021				
1990	25,000	21,500	24	517,200	2022				
1991	13,200	12,900	70	903,000	2023				
1992	20,000	19,500	80	1,560,000	2024				
1993	41,400	40,900	96	3,926,400	2025				
1994	44,603	44,584	73	3,254,632	2026				
1995	52,818	25,548	55	1,405,140	2027				
1996	17,334	11,000	22	242,000	2028				
1997	18,965	18,695	98	1,862,363	2029				
1998	55,000	45,000	40	1,800,000	2030				
1999	28,997	28,845	81	1,615,000	2031				
2000	29,400	28,000	54	1,497,000	2032				
2001	2,500	19,400	57	1,109,000	2033				
2002	3,200	25,100	42	1,042,000	2034				
2003	1,500	1,300	60	681,000	2035				
2004	8,000	7,800	91	708,000	2036				
2005	7,700	7,600	51	385,000	2037				
2006	3,700	1,700	69	17,000	2038				

Data secured from U.S. Department of Agriculture Statistical Reporting Service and Texas Crop Livestock Reporting Service.

Figures for the 2013 and 2016 seasons were estimated using data obtained from the Nueces County FSA Office, and the Nueces County Extension Office4

Nueces County

Appendix

South Texas Beef 706

Rogelio Mercado, County Extension Agent-Agriculture, Jim Wells County
Dr. Joe Paschal, Extension Livestock Specialist, Corpus Christi
Dr. Dan Hale, Extension Meat Science Specialist, College Station
Frank Escobedo, County Extension Agent-Agriculture, Kleberg & Kenedy Counties
Jason Ott, County Extension Agent-Agriculture, Nueces County
Bobby McCool, County Extension Agent-Agriculture, San Patricio County

Summary

Seven feeder steers were committed to the South Texas Beef 706 Program. The steers were fed for 154 days at King Ranch Feed Yard and harvested at Kane's Processors on October 25, 2016. The steers had an average daily gain of 4.01 lbs/day, starting off at 687 lbs and ending at 1300 lbs of live weight. Carcass weights averaged 811 lbs. Dressing percentage was 62.3%. Ribeye area was 14.3 square inches and fat thickness of 0.51 inches. Two steers graded high select, three graded low choice and two steers graded average choice. Only two steers profited during the feeding period and five steers lost money with a total average loss of <$97.47> and a range of $87.50 profit and <$291.41> loss.

Objective

The purpose of this trial was to demonstrate to beef cattle producers, the feedlot performance of south Texas feeder cattle and the economics of producing beef past the initial segment of the industry, which is the cow/calf operation.

Materials and Methods

Seven feeder steers, representing various breeds and crosses, were selected and purchased for this program. On May 23, 2016, 36 beef cattle producers met at Gulf Coast Livestock Auction in Alice, Texas to evaluate and purchase a steer thru a mock auction. Six groups of producers were formed and the cattle were assigned to the group purchasing the animal. The cattle were then transported to King Ranch Feed Yard where they were fed for 154 days. Performance data was collected on each calf. On October 25th, the cattle were sent to Kane's Processors in Corpus Christi to be harvested. Carcass data was collected at this time. On November 1st, half of each carcass was transported to the Meat Science Lab at Texas A&M University in Kingsville, where the participating producers graded and fabricated their steer's carcass into primal and sub-primal cuts. Carcass cut-out data was collected at this time.

Results and Discussion

Data was collected at each phase of the program. The following tables illustrate the cattle's feedlot performance, carcass data and economic data collected during the feeding trial.

Table 1. Feedlot Performance

ID	Desc	ON WT	GAIN	ADG	LIVE WT	SALE WT
41	CharX	660	684	4.47	1400	1344
42	Char X Brah	670	626	4.09	1350	1296
43	Red MF	670	655	4.28	1380	1325
44	Angus	645	632	4.13	1330	1277
45	HerfX	730	537	3.51	1320	1267
46	Brang	765	627	4.10	1450	1392
47	Brindle	670	530	3.46	1250	1200
AVG		**687**	**613**	**4.01**	**1354**	**1300**

When the steers were delivered to the feed yard, their average weight was 687 lbs. Their average daily gain was 4.01 lbs/day for the 154 day feeding period. They gained an average of 613 lbs for a final average weight of 1300 lbs.

Table 2. Carcass Data

ID	Desc	CARC WT	DRESS	FAT	ADJPYG	REA	REA/CWT	KPH	AMAT	MARBSC	QG	YG
41	CharX	855	63.6	0.30	2.8	16.5	1.93	2.0	A	MT00	Avg CH	1.6
42	Char X Brah	774	59.7	0.30	2.8	13.3	1.72	2.0	A	SL70	High SE	2.3
43	Red MF	827	62.4	0.35	3.1	16.0	1.93	2.0	A	SM30	Low CH	1.8
44	Angus	812	63.6	0.70	3.7	13.9	1.71	2.0	A	MT20	Avg CH	3.3
45	HerfX	786	62.0	0.70	3.7	13.8	1.76	2.0	A	SM20	Low CH	3.2
46	Brang	889	63.9	0.60	3.7	13.8	1.55	2.0	A	SM20	Low CH	3.4
47	Brindle	734	61.1	0.60	3.7	12.7	1.73	2.0	A	SL70	High SE	3.1
AVG		**811**	**62.3**	**0.51**	**3.4**	**14.3**	**1.76**	**2.0**				**2.7**

At harvest, the steer's carcass weighed an average of 811 lbs. Dressing percentage was 62.3% with a ribeye area of 14.3 square inches and fat thickness of 0.51 inches. Two steers graded high select, three graded low choice and two steers graded average choice.

Table 3. Economic Data

ID	Desc	CALF Value	Feed Cost	Processing	Medicine	Other	Feed Exp	Total Exp	Grid Value	DIFF
41	CharX	$937.00	$431.95	$17.27	$0.00	$1.81	$451.03	$1,388.03	$1,406.48	$18.45
42	Char X Brah	$1,045.00	$395.32	$17.27	$0.00	$1.81	$414.40	$1,459.40	$1,167.99	-$291.41
43	Red MF	$1,012.00	$413.51	$17.27	$102.42	$1.81	$535.01	$1,547.01	$1,348.01	-$199.00
44	Angus	$819.00	$398.98	$17.27	$0.00	$1.81	$418.06	$1,237.06	$1,323.56	$86.50
45	HerfX	$934.00	$339.24	$17.27	$0.00	$1.81	$358.32	$1,292.32	$1,248.95	-$43.37
46	Brang	$1,086.00	$395.95	$17.27	$0.00	$1.81	$415.03	$1,501.03	$1,413.51	-$87.52
47	Brindle	$905.00	$334.70	$17.27	$0.00	$1.81	$353.78	$1,258.78	$1,092.92	-$165.86
AVG		**$962.57**	**$387.09**						**$1,285.92**	**-$97.46**

The calf value was assessed based on the price each producer group paid (times the weight of the calf) during the mock auction at the start of the program. Feed costs were calculated using cost of gain figures provided by the feed yard. Only one calf inquired additional costs during the feeding period due to an illness and that calf (Tag #43) acquired an additional $102.42 in medicine costs. The grid value of the cattle was calculated based on carcass data and premiums awarded for meeting certain criteria on quality and yield grades as well as qualifying for the Certified Angus Beef (CAB) program. Only two steers profited during the feeding period and five steers lost money with a total average loss of <$97.47> and a range of $87.50 profit and <$291.41> loss.

Conclusions

This demonstration showed the participating beef cattle producers some of the complexities and economic issues associated with our industry. At the start of the program, cattle prices were on a decline and continued to do so, and this was consequently partly to blame for the losses at the end of the program. However, from the testimony provided from the participants, most left the program with a better understanding of beef cattle breeds and how they impact carcass quality and value and also how their management practices at the ranch ultimately have an impact on the beef that is being produced on the rail.

Acknowledgements

The agents and specialists involved in coordinating this program would like to thank the Texas Beef Council for their full financial support of this program. Without the Beef Check-Off Program and their support of producer education, this program would not be possible. The efforts of Mr. Eddie Garcia, owner of Gulf Coast Livestock Auction are appreciated in helping kick off and ensuring a successful program. King Ranch Feed Yard did a great job feeding and managing the cattle. Their expertise in getting cattle ready for harvest is appreciated. Kane's Processors harvested the steers and opened their doors for a tour of their facilities. This was an excellent opportunity that many producers have never had. Dr. Tanner Machado with Texas A&M University in Kingsville hosted the producers at their Meat Science Lab and provided an experience of a life time that even seasoned producers have not had before. The agents appreciate Dr. Dan Hale and Dr. Joe Paschal for providing them the opportunity and sharing their expertise in order to bring this special program to the area.

NUECES COUNTY ROW CROP PRODUCTION - 10-YEAR OVERVIEW

GRAIN SORGHUM

YEAR	PLANTED	ACRES HARVESTED	POUNDS/ACRE	TOTAL (CWT)
2007	187,000	184,000	3,864	7,109,760
2008	198,850	188,900	3,696	6,981,744
2009	168,211	49,800	2,240	1,115,520
2010	183,430	183,430	4,730	8,676,239
2011	141,867	141,867	3,800	5,390,946
2012	187,196	140,100	3,370	4,721,370
2013	167,868	105,168	1,736	1,825,716
2014	155,700	154,600	3,164	4,891,544
2015	206,600	205,600	3,220	6,620,320
2016	160,000	159,810	4,800	7,670,880
10-Yr Avg	**175,672**	**151,328**	**3,462**	**5,500,404**

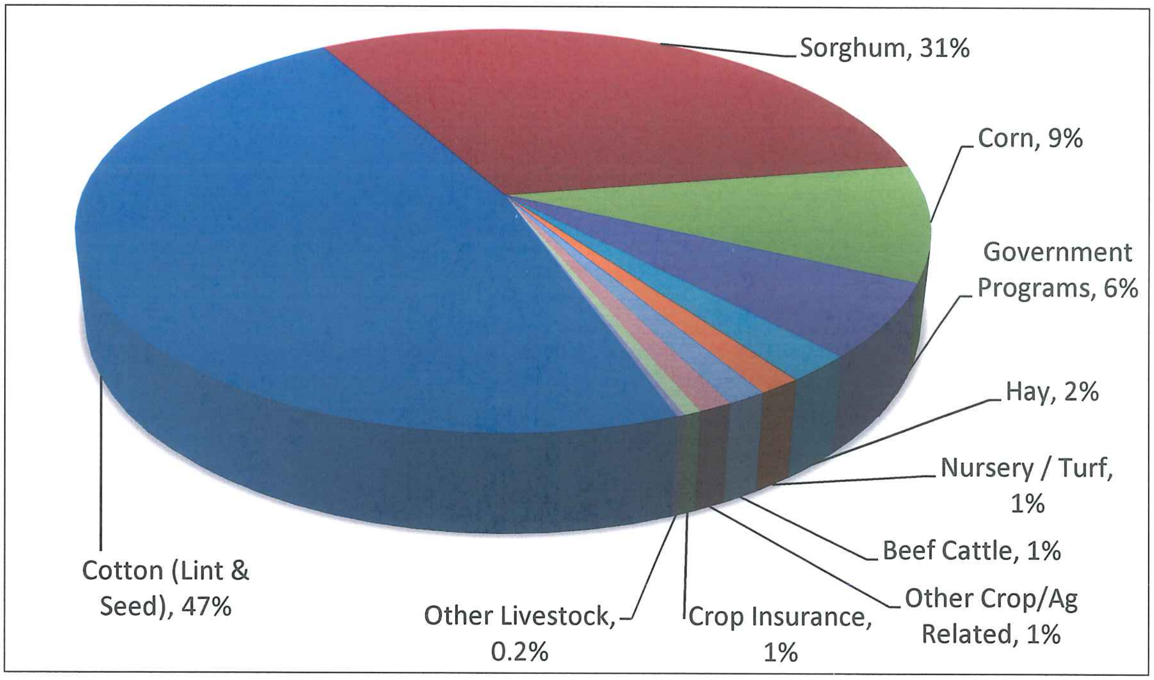
COTTON

YEAR	PLANTED	ACRES HARVESTED	POUNDS/ACRE	TOTAL (Bales)
2007	110,300	109,900	917	210,000
2008	116,500	790,800	475	78,900
2009	125,790	4,116	360	3,087
2010	104,050	104,050	866	187,721
2011	130,840	111,527	669	155,441
2012	112,793	30,200	370	23,300
2013	168,786	2,055	350	1,498
2014	129,000	123,300	667	171,300
2015	30,800	290,200	817	49,700
2016	99,000	98,245	880	180,116
10-Yr Avg	**112,786**	**166,439**	**637**	**106,106**

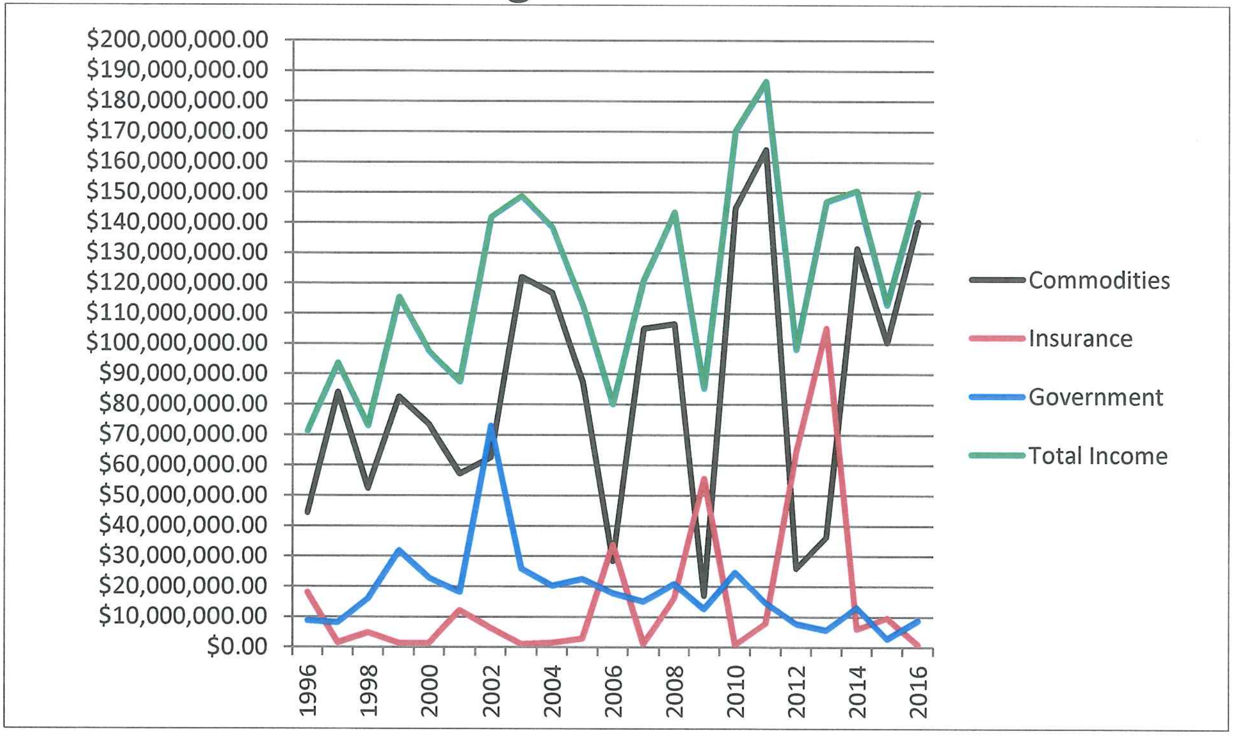
CORN

YEAR	PLANTED	ACRES HARVESTED	BUSHELS/ACRE	TOTAL (Bu)
2007	10,300	10,000	88	880,000
2008	5,500	5,400	41	220,000
2009	9,309	2,312	25	57,800
2010	9,867	9,866	97	957,022
2011	12,500	10,000	45	448,000
2012	3,167	1,529	30	45,870
2013	12,300	3,100	36	110,050
2014	17,000	16,600	57	939,000
2015	19,800	19,500	63	1,219,000
2016	37,000	36,586	118	4,317,148
10-Yr Avg	**13,674**	**11,489**	**60**	**919,389**

2016 Nueces County Agricultural Income
Total Income = $149,958,900



Historic Agricultural Income*



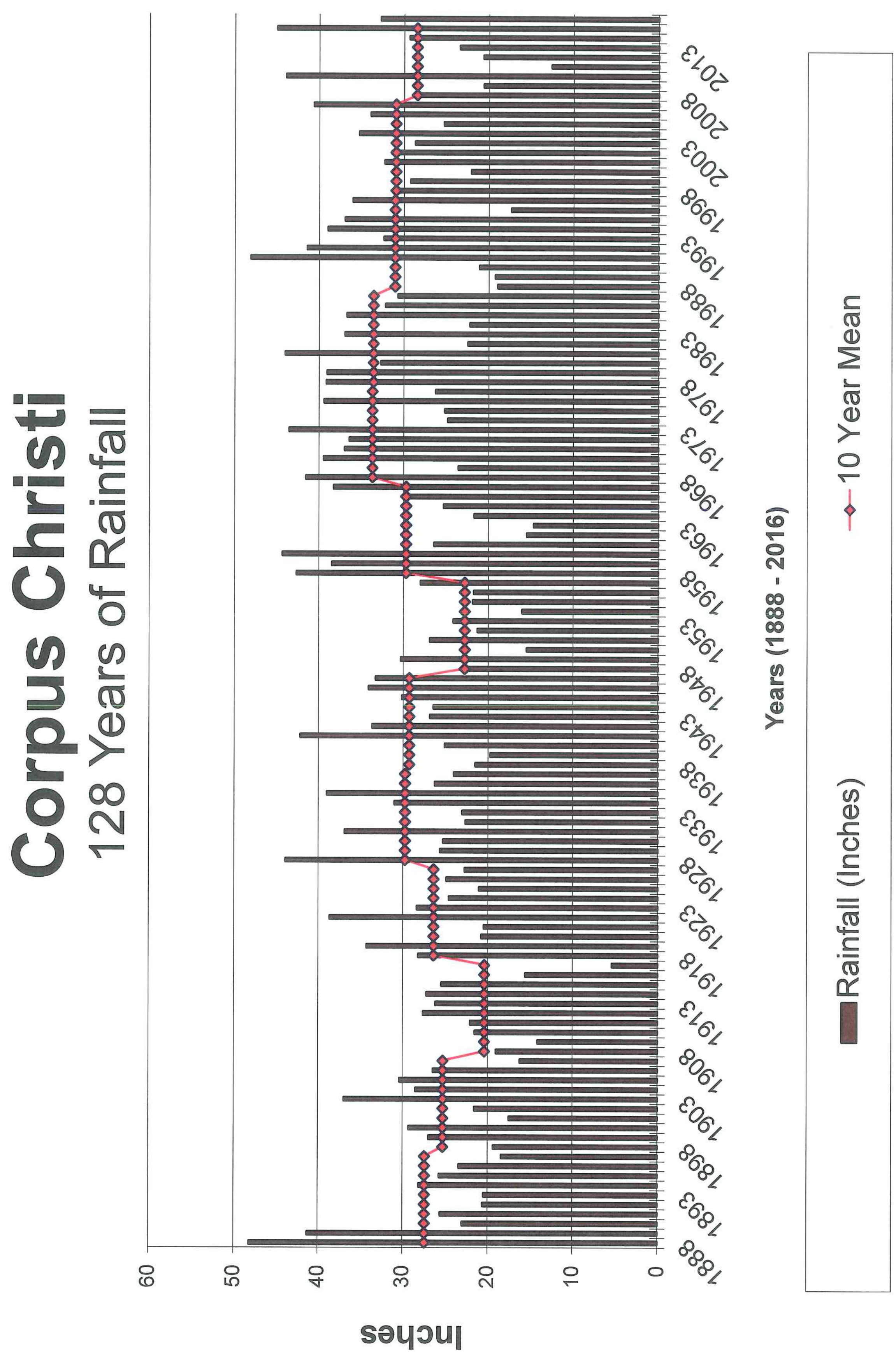
*This estimated income includes commodity sales, government subsidies and crop insurance.

NUECES COUNTY
ANNUAL AGRICULTURAL INCREMENT REPORT

Compiled By:
Jason P. Ott - County Extension Agent-Ag/NR

{Estimated County Cash Receipts in $1,000's}

Commodity	2011	2012	2013	2014	2015	2016
Wheat	494.20	194.60	656.00	2479.12	4608.70	1158.20
Corn	4444.60	321.00	1234.10	6134.52	4968.20	14030.70
Hay	1960.00	2520.00	2417.00	7976.64	5333.00	3319.30
Oats	0.00	0.00	6.20	0.00	0.00	0.00
Sorghum	54125.10	11264.00	19398.20	43912.34	59405.40	46023.00
Cotton	76103.70	3386.00	503.50	48243.24	15486.70	59654.40
Cottonseed	16193.70	1335.00	187.20	18053.78	4246.50	11264.80
Sesame	73.90	146.00	936.00	396.44	708.20	106.20
Sunflowers	460.00	271.00	216.50	84.67	295.00	0.00
Guar			340.80	62.40	0.00	0.00
Vegetables	5.00	5.00	5.00	5.00	5.00	15.00
Nursery	1200.00	1000.00	865.00	1175.00	2271.90	2088.10
Poultry	180.90	199.30	0.00	0.00	0.00	0.00
Beef Cattle	4414.00	2766.80	8783.85	2180.96	2335.30	1903.10
Goats	448.00	473.60	0.00	19.02	24.20	29.30
Hogs	660.80	770.00	0.00	32.60	39.10	27.30
Sheep	177.00	219.80	0.00	8.77	11.40	10.50
Aquaculture	120.00	200.00	200.00	200.00	200.00	200.00
Horses	300.00	300.00	300.00	300.00	300.00	300.00
Hunting	130.00	130.00	130.00	130.00	130.00	130.00
Other Ag Related	367.80	387.50	62.00	143.51	50.50	50.00
TOTAL	**161858.70**	**25889.60**	**36241.35**	**131538.01**	**100419.10**	**140309.90**


Corpus Christi
128 Years of Rainfall
Inches
Years (1888 - 2016)
Rainfall (Inches)
10 Year Mean
0
10
20
30
40
50
60
1888
1893
1898
1903
1908
1913
1918
1923
1928
1933
1938
1943
1948
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1958
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1968
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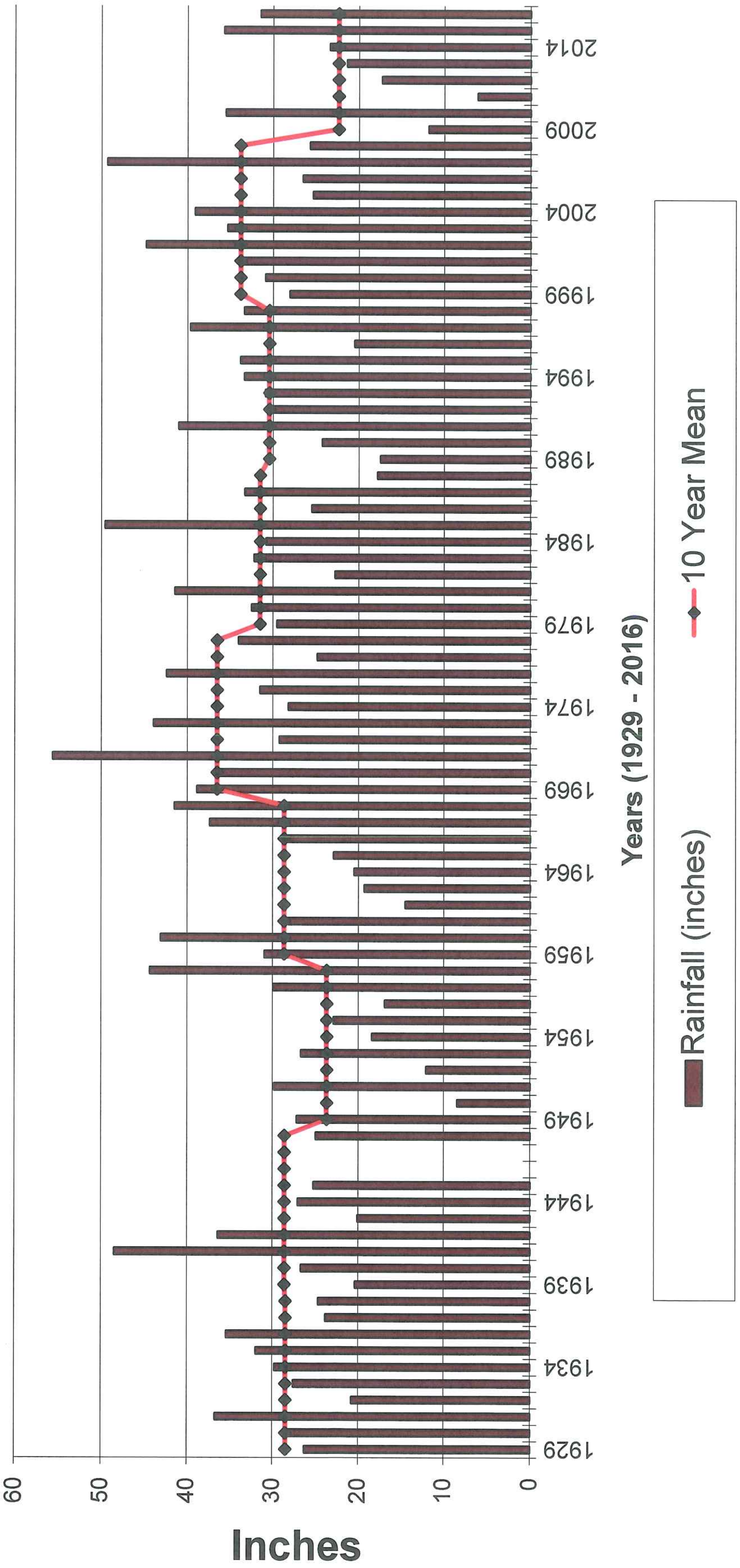
2003
2008
2013

Robstown

87 Year of Rainfall



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AGRICULTURAL INFORMATION SOURCES

Nueces County Extension Agents Agriculture/Natural Resources
710 E. Main, Suite 1; Robstown, TX 78380
Phone: 361.767.5223 Fax: 361.767.5248
Web Address: http://nueces.agrilife.org/
E-mail: nueces-tx@tamu.edu

Texas A&M AgriLife Research and Extension Center
Corpus Christi A&M Research and Extension Center
10345 State Hwy 44; Corpus Christi, TX 78406-9704
Physical Location: Hwy 44, 4 miles West of CC Airport
Phone: 361.265.9203 Fax: 361.265.9434
Web Address: http://ccag.tamu.edu/

Farm Service Agency
548 S. Hwy 77, Suite A; Robstown, TX 78380
361.387.2533

Natural Resources Conservation Service
548 S. Hwy 77, Suite B; Robstown, TX 78380
361.387.2533

Cotton Classing Office/USDA AMS - Corpus Christi
3545 Twin River Boulevard; Corpus Christi, TX 78410
Phone: 361.241.4001 Fax: 361.241.0133

Texas Department of Agriculture - Austin
Pesticide Applicator Certification Division
(regulatory information and pesticide enforcement)
PO Box 12847; Austin, TX 78711
512.475.1675 TELL-TDA 1.800.835.5832

TEXAS A&M AGRILIFE EXTENSION