SKIP ROW VS. CONVENTIONAL COTTON PERFORMANCE

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Summary

This test was located on the Jungmann Farm, north of Bishop on FM 3354. Soil moisture conditions at planting were fair. Results show small differences in returns between the two treatments. There was an advantage of $7.95 per acre for the conventional row-spacing if one owns the cotton picker and a $15.92 per acre advantage for conventional spacing if one uses a custom operator to harvest. There was not a statistical difference in lint yield per acre between the solid row and skip-row systems.

Objective

To evaluate skip-row(2 rows in by one row out configuration) vs. conventional row planted cotton grown under Nueces County environmental conditions.

Materials and Methods

Cotton was planted in a replicated study with four replications in a randomized complete block design. Each plot consisted of 12 rows, 975 feet in length. Soil moisture conditions at planting were fair at planting depth. At time of fertilization, the skip or unplanted row was not fertilized. Stand counts were taken at three areas in the field for each plot approximately one month following planting. Rainfall was below normal. The monthly rainfall received was; March=0.87 inch, April=0 inch, May = 1.54 inches, June = 0.56 inch, for a total of 2.97 inches from planting through harvest. Plots were harvested on July 27, 2011 with a John Deere Cotton Stripper. Seed cotton from 0.33 acre was weighed in the field at harvest using an electronic scale equipped cotton weigh-wagon. Random grab samples were collected from each variety at weighing for lint turn-out and fiber quality analysis. Fiber analysis was conducted by the Fiber & Bio-polymer Research Institute using standard HVI classing procedures.

Table 1: Agronomic data for Conventional Cotton Variety Performance Demonstration, Jungmann   Farm, Bishop, (Nueces County), Texas, 2011.

Planting Date: 3/09/2011 Harvest: Date: 7/27/11	Rows/Plot: 12 - with 4 replicates Plot Length 975 ft	Row Width: 30 inch
Fertility: 220# 25-5-0	Herbicide: 1.5 qt/A Trust 1 qt/A Roundup 0.10 oz/A Invoke 10 oz/A Arrow	Previous Crop: Sorghum
Planting Rate: 55,000 plants/Ac	Soil Type: Victoria clay	Cotton Variety: PHY 375 W

Results and Discussion

Poor soil moisture helped reduced the final plant stand as skip row treatments averaged 20,621 plants/acre while the solid row or conventional treatments averaged 30,175 plants/acre.

When comparing the two planting configurations, there were no significant differences in lint yield and gin turnout. Also, micronaire, length, strength, and uniformity values were not significantly different. Differences in loan value and dollar return per acre were not observed.

Table 2. Comparison of number of days to cutout (NAWF=5) lint yield, lint quality, loan value, and lint value per acre between treatments, Jungmann Farm, Nueces County, Texas, 2011.

Treatment	NAWF = 5	Lint (lbs/ac)		Turnout (%)		Mic		Length (inches)		Strength (g/tex)		Unif		Loan Value (¢/lb)		Lint Value ($/acre)*	
Skip Row	95.8 a	729.3	a	39.6	a	4.25	a	1.03	a	27.55	a	81.10	a	50.61	a	**689.71**	**a**
Solid Row	90.8 b	803.3	a	38.6	a	4.05	a	1.01	a	27.20	a	80.45	a	49.46	a	**750.48**	**a**
LSD (P=0.05	3.18	NS		NS		NS		NS		NS		NS		NS		**NS**	
P>F	0.0154	0.0789		0.2969		1.0000		0.2191		0.5521		.3427		0.2824		**0.0789**	

Means in column followed by the same letter are not significantly different by ANOVA.
* Price based on USDA 9/29/11 report

The harvest cost estimates for the two treatments were made using the Mississippi State Budget Generator based on the following assumptions:

The harvest machine was assumed to be a six row picker/module with an initial investment of $570,000, with lifetime repair and maintenance costs estimated at 25% of the initial value and a 30% salvage value. The costs were estimated for a machine that would harvest 2,000 acres per year.

Conventional (solid rows) was assumed to be 6-30 inch rows, with the machine width of 15 feet, with a harvest speed of 5 mi./hr. and a field efficiency of 70%. This results in a calculated harvest rate of 6.4   ac./hr,
resulting in 312 hours of annual use, calculated over five years resulting in total use of 1560 hours. These assumptions result in a harvest cost of $82.10 per acre for the conventional planting pattern.

Skip-row machine width was assumed to be 20 feet, with a harvest speed of 5 mi./hr. and a field efficiency of 70%. This results in a calculated harvest rate of 8.5 ac./hr, resulting in 250 hours of annual use, calculated over six years resulting in total use of 1500 hours. These assumptions result in a harvest cost of $65.25 per acre for the skip-row planting pattern.

 A charge of five dollars per acre was added to both systems for staging the bales.

Table 3. Conventional vs. Skip Row Economical Analysis

	Conventional	Skip Row	Difference ($)
Yield (lint pounds/acre)	803	729	
Turnout	38.60%	39.60%	
Cotton seed yield (lbs per acre-lint * 1.414)	1,135	1,031	
Market Value (cents per pound @ 41 color 4 leaf grade)	$ 93.46	$ 94.61	
Lint value per acre at loan	$ 750.48	$ 689.71	$ 60.77
Cotton seed value per acre @ $320/ton	$ 181.60	$ 164.96	$ 16.64
Seeding Rate per Acre	55,000	36,667	
Seed Cost per Bag	$ 350.00	$ 350.00	
Technology Fee ($ per Bag)	$ -	$ -	
Insecticide Seed Treatment ($ per Bag)	$ -	$ -	
Seed cost $/Acre	$ 86.69	$ 55.79	$ (30.90)
Technology fee ($ per acre)	$ -	$ -	$ -
Insecticide seed treatment cost ($ per acre)	$ -	$ -	$ -
Fertilizer ($370/ton 25-5-0)	$ 40.70	$ 27.13	$ (13.57)
Picking and Moduling ($0.12 per lint pound) - custom	$ 96.36	$ 87.48	$ (8.88)
Ginning cost per acre ($0.11 per lint pound)	$ 88.33	$ 80.19	$ (8.14)
Advantage for conventional spacing per acre			$ 15.92
Picking and Moduling - owned	$ 87.10	$ 70.25	$ (16.85)
Advantage for conventional spacing per acre			$ 7.95

Conclusions

Based on the economic analysis done in this study, there is an advantage of $7.95 per acre for the conventional row-spacing if one owns the cotton picker and a $15.92 per acre advantage for conventional spacing if one uses a custom operator to harvest.