

## TEXAS-OKLAHOMA PRODUCER COTTON

### MARKET SUMMARY: 1994/1995

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$$P = \beta_0 e^{\beta_1 LF^2 + \beta_2 CI^2 + \beta_3 DUM1 + \beta_4 DUM2} \\ e^{\beta_5 DUM3 + \beta_6 STA + \beta_7 STA^2 + \beta_8 STR + \beta_9 M + \beta_{10} M^2} \\ e^{\beta_{11} LB + \beta_{12} HB + \beta_{13} LO + \beta_{14} HO + \beta_{15} R}$$

### Abstract

Producer market price analysis for the 1994/95 crop year was conducted with the Daily Price Estimation System (DPES) at Texas Tech University for both the West Texas and East Texas/Oklahoma marketing regions. The estimation included a modification to the model of previous years. Results indicate that quality premiums and discounts for the leaf grade were more stable this year compared to the 1993 crop. However, premiums and discounts for the color grade and discounts for micronaire were less stable this crop year. The year was marked by steady increases in prices, due in part to short world supply.

### Introduction

This report presents the results of daily cotton prices and quality premiums and discounts from the 1994/95 producer markets in Texas and Oklahoma. All results are from the Daily Price Estimation System (DPES) at Texas Tech University. The DPES is a computerized, econometric price analysis system that evaluates producer market prices and quality premiums and discounts for the West Texas and East Texas/Oklahoma marketing regions on a daily basis (Brown et al.; Ethridge et al., 1992). The DPES uses all transactions from two electronic spot markets operating in the region to measure the prices, premiums, and discounts. Qualities are based on the official U.S. Dept. of Agriculture's HVI grading standards.

### 1994 Crop Statistics

A total of 1,244,936 bales were used in computations by the DPES (983,738 in West Texas and 261,198 bales in East Texas/Oklahoma). This constitutes about 25% of the 5.1 million bale Texas/Oklahoma crop and about 31% of the sales from producers directly into the market (excludes contracted cotton and pooled sales). Overall, the 1994 crop in Texas and Oklahoma appeared to be of slightly better quality than the 1993 crop (see Hudson et al. for a comparison to the 1993 crop.). Table 1 gives the average values and the 95% population ranges for each of the quality attribute.

### The DPES Model

where:

P = price of cotton in ¢/lb.;

LF = leaf grade;

CI = first digit of the color grade;

DUM 1 = binary indicator for the second digit of the color grad (If the second digit = 2, DUM 1 = 1, other wise DUM 1 = 0);

DUM 2 = binary indicator for the second digit of the color grade = 3;

DUM 3 = binary indicator for the second digit of the color grade = 4;

STA is staple length in 32nds of an inch;

STR is strength in grams/tex;

M = micronaire reading

LB = % of bales in lot classed with level 1 bark;

HB = % of bales in a lot with level 2 bark;

LO = % bales in a lot with level 1 other extraneous matter;

HO = % of bales in lot with level 2 other extraneous matter;

R = region (West Texas or East Texas/Oklahoma).

The model presented is a modification of the 1993 model (Hudson et al.). The second digit of the color grade has been converted to a set of indicator variables for greater accuracy. The reason for this adjustment is that tests using the previous model gave premiums in the low range of the second digit (1-2) that were too large and discounts in the high range (3-4) that were too large. The dummy variable approach to the second digit of the color grade showed no systematic error in the estimates following the approach described in Brown and Ethridge.

### Average 1994/95 Prices, Premiums, and Discounts

Tables 2 and 3 show the 1994/95 average prices, premiums, and discounts for the West Texas and East Texas/Oklahoma marketing regions. The average base price received by producers in West Texas was 71.77 ¢/lb., while the average base price in East Texas/Oklahoma was 71.75 ¢/lb. Micronaire discounts were consistent with 1993/94. Strength premiums and discounts were slightly smaller than in 1993/94. This may be due to the relative abundance of high strength cotton in these regions.

### Patterns of Prices, Premiums, and Discounts

The following is a summary of the producer premiums and discounts for individual fiber attributes in the 1994/95 marketing year. Emphasis is on the movement of these premiums and discounts through the marketing year.

### Leaf Grade

The average daily leaf grade premiums and discounts (Figure 1) were more stable than in 1993/94. This may indicate that the market was "learning" to interpret the meaning of the leaf grade.

### Color Grade

As an example of the color grade, discounts for color grade 42 are shown in Figure 2. Discounts for color grade were somewhat erratic and there was an increase in the discounts as the marketing season progressed (i.e., the discounts got larger as the year progressed). The reason for the erratic behavior in the color grade discounts may have been attributable to uncertainty about what the color grade means.

### **Staple**

Staple premiums were relatively stable throughout the 1994/95 marketing year (Figure 3). However, staple showed, at least at times, to have no effect on the price of cotton (no premium or discount). This may be due in part to the relatively narrow range of staple in the 1994 crop (see Table 1). With little variation in length, there may be little or no variation in price that can be attributed to length.

### **Strength**

The strength premiums appeared stable throughout the marketing year (Figure 4), with a slight downward trend in the premiums and discounts. This may be reflecting the general price signal from the textile mills gradually overwhelming the influences of the loan schedule. That is, textile mills have not been paying strength premiums for high strength nor discounting low strength cotton in the Texas-Oklahoma markets since 1992 (Ethridge et al., 1995). Strength premiums have also been on the decline for the past several years (compare this year's premiums to last year's in Hudson et al.). This may mean that the producer market is responding slowly to the price signals from the textile mills.

### **Micronaire**

Micronaire discounts (Figure 5) in 1994/95 were more erratic than in 1993/94, although the average level of discounts was comparable to last year's level. The variability of micronaire discounts became greater in the last half of the season.

### **Base Price**

The base price showed a significant upward trend with the 1994/95 year, starting almost where it ended in 1993/94. It started around 60 ¢/lb. and continued upwards to about 85 ¢/lb. (Figure 6). As with the 1993/94 crop, world supplies were limited and demand was strong, creating a demand driven environment.

### **Trading Activity**

The total volume of transactions was slightly smaller than in 1993/94. However, some of the largest days in terms of transactions per day were recorded. This indicated that the cotton was moving through the market rapidly. As harvest got under way, the volume became heavy and continued to intensify until late December. The volume remained heavy until late January and early February when trading activity

decreased significantly. By mid-February, trading activity had all but ceased.

## **Conclusions**

In general, the 1994 crop was of high quality for Texas and Oklahoma (although it was not as good as the 1993 crop). Volume in these two regions was heavy, but shortfalls in the world cotton supply helped drive the base price to a high level.

There appeared to be some resolution in the values of the premiums and discounts for the leaf grade, but there still appear to be some questions as the "true" values for the color grade. There appears to be some evidence that the patterns premiums and discounts for strength are changing. This may be due in part to price signals from the textile mill sector.

Overall, the 1994/95 marketing year appeared to be demand driven characterized by rising prices through the year. The strong demand for Texas-Oklahoma cotton may be due in part to the relatively low world supply of cotton, and also the relatively high quality of the 1994/95 crop. Whatever the reason, the buying pressure appeared to be a catalyst for rising prices. This type of market may have also caused both premiums and discounts to be smaller than when cotton is abundant or demand is weaker.

## **Acknowledgments**

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## **References**

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3. Ethridge, D., C. Engels, and J. Brown. "An Econometric Approach for Estimating Daily Market Prices. 1992 Beltwide Cotton Conferences, Proceedings, Cotton Economics and Marketing Conference, National Cotton Council, Memphis, TN, pp. 399-402.

4. Ethridge, D., C. Chen, and D. Hudson. "Market Valuation of Cotton Quality Attributes in the U.S." Proceedings of the Engineered Fiber Selection Conference, (in press).

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Table 1. 1994/95 Texas/Oklahoma Crop Statistics From the DPES.

Attribute	Average	95% Range
Price (Cents/lb.)	71.67	59.64-83.68
Bales per sale	39	1-168
Leaf Grade	3.39	1.39-5.39
First Digit of the Color Grade	2.47	1.34-4.58
Second Digit of the Color Grade	1.66	1-2.67
Staple	32.86	29.84-35.88
Strength	27.69	22.89-32.49
Micronaire	4.12	3.15-5.09
Level 1 Bark (%)	12.45	0-56
Level 2 Bark (%)	0.03	0-2
Level 1 Other (%)	2.07	0-22
Level 2 Other (%)	0.17	0-6.2

Table 2. 1994/95 Weighted Average Price Estimates from the DPES, West Texas Marketing Region.

1994 Crop Weighted Average Daily Spot Cotton Price Estimates.  
 Dept. of Ag. Economics, Texas Tech University #Sales: 25,121  
 All Premiums/Discounts in points/lb. #Bales: 983,738

Color Grade	Staple Length											
	28	29	30	31	32	33	34	35	36	37	38	
11	--	--	--	--	--	--	--	--	--	--	--	--
21	--	-222	-139	-65	-1	52	95	126	147	--	--	--
31	--	-260	-177	-104	-40	13	55	86	107	--	--	--
41	--	-313	-230	-157	-94	-42	71.77	72	72	--	--	--
51	--	-380	-298	-226	-164	-112	-70	-39	-19	--	--	--
61	--	--	--	--	--	--	--	--	--	--	--	--
71	--	--	--	--	--	--	--	--	--	--	--	--
12	--	--	--	--	--	--	--	--	--	--	--	--
22	--	-271	-188	-115	-52	1	44	75	95	--	--	--
32	--	-309	-226	-153	-90	-38	4	35	56	--	--	--
42	--	-361	-279	-207	-144	-92	-50	-19	1	--	--	--
52	--	-428	-346	-275	-213	-161	-120	-89	-69	--	--	--
62	--	--	--	--	--	--	--	--	--	--	--	--
23	--	-442	361	-289	-228	-176	-135	-104	-84	--	--	--
33	--	-478	-398	-327	-265	-214	-173	-143	-123	--	--	--
43	--	-529	-449	-379	-318	-267	-226	-196	-177	--	--	--
53	--	-594	-515	-445	-385	-335	-294	-264	-245	--	--	--
63	--	--	--	--	--	--	--	--	--	--	--	--
34	--	--	--	--	--	--	--	--	--	--	--	--
44	--	--	--	--	--	--	--	--	--	--	--	--
54	--	--	--	--	--	--	--	--	--	--	--	--
Micronaire Differences												
Leaf Grade Differences												
Bark Discounts												
Strength Differences												
Mike Range												
Leaf Grade												
Bark Code												
Grams/Tex.												
<=24	--	1	--			Level 1	-95	<=18	--			
25-26	--	2	72			Level 2	-537	19	--			
27-29	-323	3	42					20	-35			
30-32	-197	4	0			Other		21	-27			
33-34	-114	5	-53			Discounts		22	-20			
35-49	0	6	-118					23	-12			
50-52	-164	7	--			Level 1	-166	24&25	0			
>=53	--					Level 2	-506	26	12			
								27	20			
								28	27			
								29	35			
								30	43			
								>=31	51			

Table 3. 1994/95 Weighted Average Price Estimates from the DPES, East Texas/Oklahoma Marketing Region.

1994 Crop Weighted Average Daily Spot Cotton Price Estimates.  
 Dept. of Ag. Economics, Texas Tech University #Sales: 6,733  
 All Premiums/Discounts in points/lb. #Bales: 261,198

Color Grade	Staple Length											
	28	29	30	31	32	33	34	35	36	37	38	
11	--	--	--	--	--	--	--	--	--	--	--	--
21	--	-222	-139	-65	-1	52	95	126	147	--	--	--
31	--	-260	-177	-103	-40	13	55	86	107	--	--	--
41	--	-313	230	157	-94	-42	71.75	72	2	--	--	--
51	--	-380	-298	226	164	-112	-70	-39	9	--	--	--
61	--	--	--	--	--	--	--	--	--	--	--	--
71	--	--	--	--	--	--	--	--	--	--	--	--
12	--	--	--	--	--	--	--	--	--	--	--	--
22	--	-271	-188	-115	-52	1	44	75	5	--	--	--
32	--	-309	-226	153	-90	-38	4	35	56	--	--	--
42	--	-361	-279	-207	144	92	-50	-19	1	--	--	--
52	--	-428	-346	-275	213	161	-120	-89	-69	--	--	--
62	--	--	--	--	--	--	--	--	--	--	--	--
23	--	-442	-361	-289	-228	-176	-135	-104	-84	--	--	--
33	--	-478	-398	-327	-265	-214	-173	-143	-123	--	--	--
43	--	-529	-449	-379	-318	-267	-226	-19	-177	--	--	--
53	--	-594	-515	-445	-385	-335	-294	-264	-245	--	--	--
63	--	--	--	--	--	--	--	--	--	--	--	--
34	--	--	--	--	--	--	--	--	--	--	--	--
44	--	--	--	--	--	--	--	--	--	--	--	--
54	--	--	--	--	--	--	--	--	--	--	--	--

Micronaire Differences	Leaf Grade Differences	Bark Discounts	Strength Differences
Mike Range	Leaf Grade	Bark Code	Grams/Tex.
<=24	1	Level 1	-95 <=18
25-26	2	Level 2	-537 19
27-29	3	Other	20 -35
30-32	4	Discounts	21 -27
33-34	5		22 -20
35-49	6		23 -12
50-52	7	Level 1	-166 24&25 0
>=53		Level 2	-506 26 12
			27 20
			28 27
			29 35
			30 43
			>=31 51

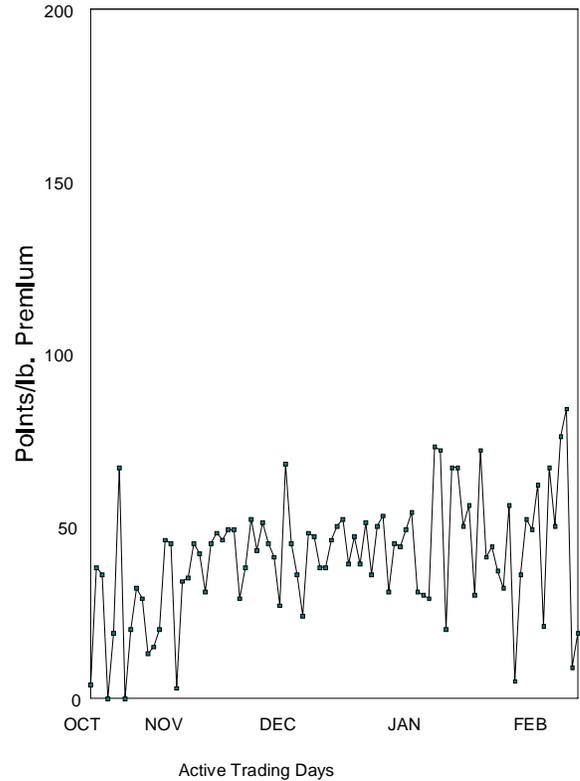


Figure 1. Leaf = 3 Premiums for the 1994/95 Marketing Year.

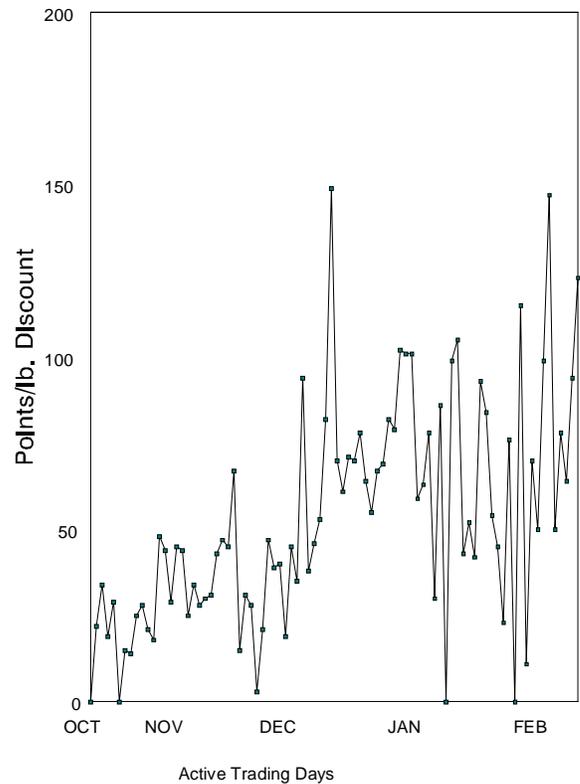


Figure 2. Color Grade = 42 Discounts for the 1994/95 Marketing Year.

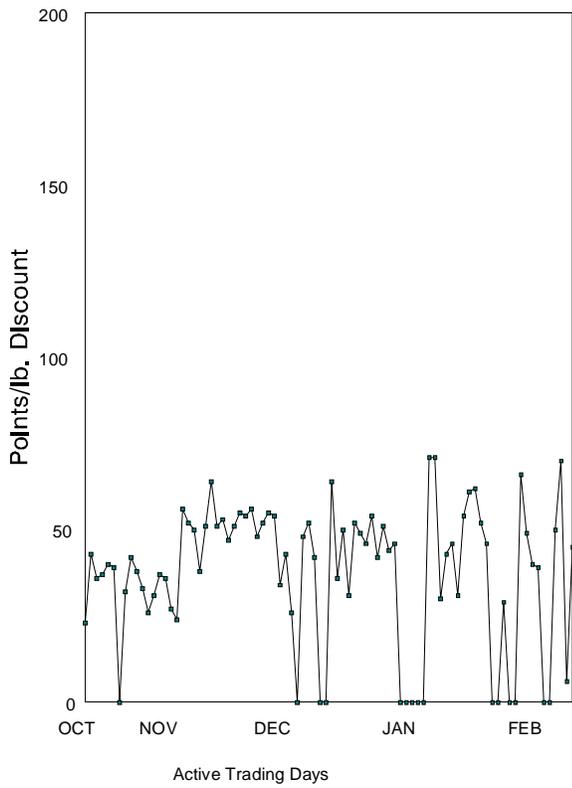


Figure 3. Staple = 33/32nds of an inch discounts for the 1994/95 marketing Year.

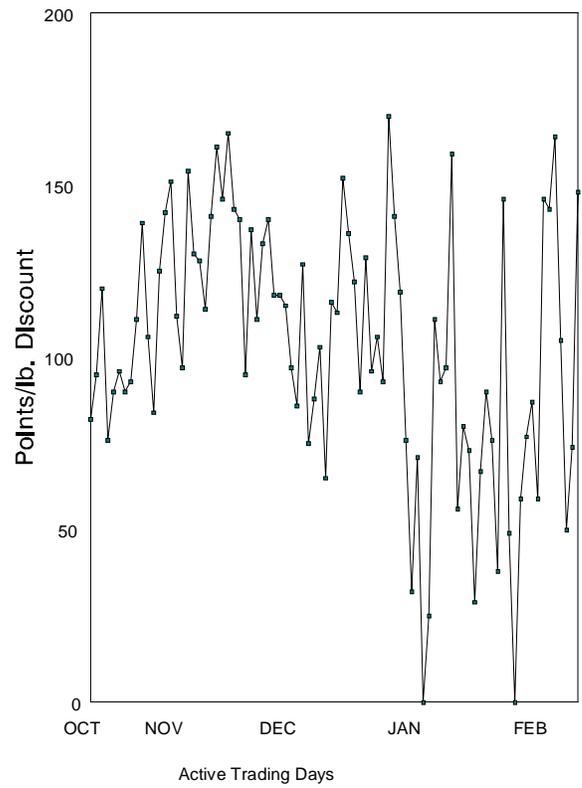


Figure 5. Micronaire = 3.35 discounts for the 1994/95 Marketing Year.

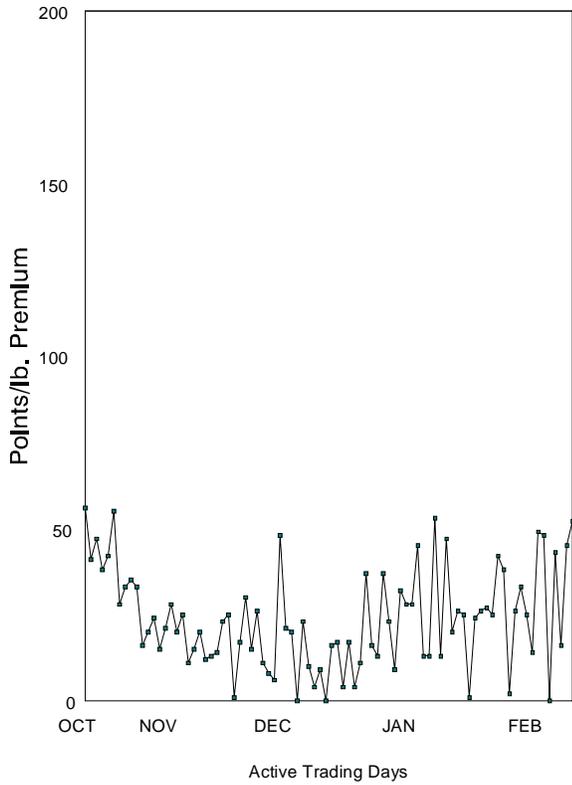


Figure 4. Strength = 28 Premiums for the 1994/95 Marketing Year.

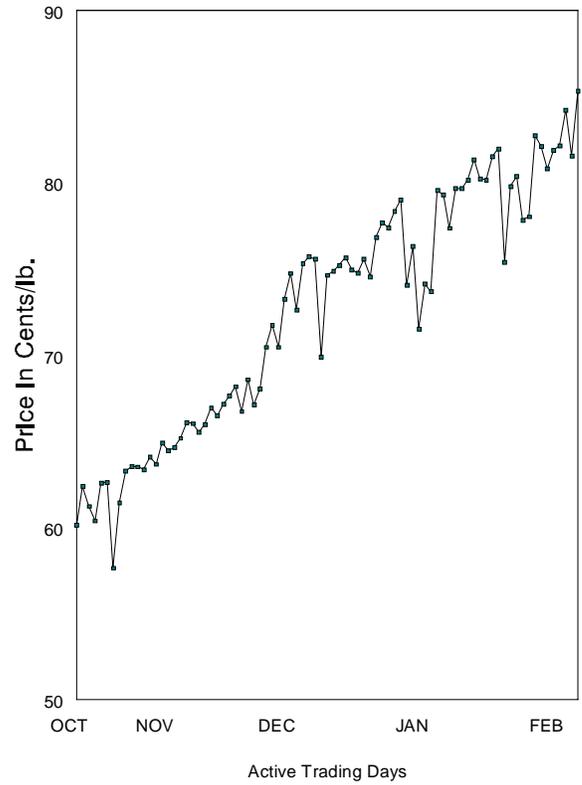


Figure 6. Base Price in West Texas over the 1994/95 Marketing Year.