TEXAS-OKLAHOMA PRODUCER COTTON MARKET SUMMARY: 2001/2002

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Abstract

The volume of the Texas-Oklahoma spot cotton market analyzed by the Daily Price Estimation System (DPES) for the 2001/02 marketing year increased from 222,283 bales the previous year to 364,267 bales this year. The average price received by producers during the 2001/02 marketing year was 26.8 cents/lb, which is considerably less than the previous year. The 2001 crop was generally of good quality. The average micronaire level was higher in 2001 at 4.41, and the average number of bales having level 1 bark was up in comparison to the 2000 crop. With the exception of strength, price discounts for the 2001 crop decreased for all quality attributes, coupled with a decrease in premiums. In regard to strength, producers did not appear to receive a premium for higher levels of strength while lower levels of strength were discounted more severely than the previous year.

Table of Contents

Tables and Figures

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Introduction

This report summarizes the price, premium, and discount estimates for the 2001/02 marketing year (also referred to as the 2001 crop year). These estimates were obtained from the Daily Price Estimation System (DPES), which is maintained and operated by the Cotton Economics Research Institute, Department of Agricultural and Applied Economics, Texas Tech University. The DPES is a computerized price analysis system that uses an econometric model to analyze producer cotton prices and estimate quality premiums and discounts for the West Texas and East Texas/Oklahoma cotton marketing regions on a daily basis (Brown et al. 1995). The DPES receives data each day from electronic spot markets operating in these regions and uses these data for daily price analysis and estimation of premiums and discounts. These data represent only producer spot market transactions, and do not include contracted cotton, commission sales to mills, or sales among merchants. The reported results are based on the official HVI grading standards used by the U.S. Dept. of Agriculture.

2001/2002 Crop Statistics

Table 1 provides a summary of the crop in terms of simple averages for the 2001/02 marketing year and comparisons with the previous three years of crop performance (Chakraborty et al. 1999, Nelson et al. 2000, Ward et al. 2001). For the 2001/02 marketing year, a total of 346,267 bales (304,189 bales from West Texas and 60,078 bales from East Texas/Oklahoma) and 4,980 sales transactions were used in the DPES estimations. This represents about 7.9% of the 4.33 million bale crop and about 15% of the Spot Market cotton in Texas and Oklahoma (TASS, 2002; USDA, 2002).

Table 1. Texas-Oklahoma Crop Statistic Averages from the DPES, by Marketing Year.

Attribute	2001/2002	2000/2001	1999/2000	1998/1999
Price (cents/lb.)	26.8	50.90	37.82	51.14
Bales per Sale	73	215	74	82
Leaf Grade	2.9	3.35	2.74	3.29
First Digit of Color Grade	2.52	3.03	2.37	2.84
Second Digit of Color Grade	1.35	1.38	1.19	1.37
Staple	33.5	32.58	32.58	33.21
Strength	28.31	27.00	27.62	27.70
Micronaire	4.41	3.87	4.17	4.17
Uniformity	80.88	80.11	--	--
Level 1 Bark (%)	9.55	0.30	6.03	11.90
Level 2 Bark (%)	0	0	0.02	0
Level 1 Other(%)	0.20	0.002	0.60	0.30
Level 2 Other (%)	0	0	0.03	0
Preparation 1	0.05	0	--	--
Preparation 2	0	0	--	--

The number of sale transactions and bales sold received by the DPES for the 2001 crop year increased by about 64% from the previous year. This higher volume could be attributed to the number of bales held over from the previous year. The number of bales per sale decreased from 215 bales in 2000/01 to 73 bales in 2001/02 (Table 1). This reflects the trend that was occurring prior to last year of a decrease in number of bales per sale observed.

The 2001 crop was characterized by a shorter length marketing year, running from the middle of October to the end of March, which is similar to the 2000 marketing year. Figure 1 illustrates the pattern of sale transactions during the 2001/2002 marketing year. After March 26, sales dropped off sharply and for the remainder of the marketing period there was little to no market activity. The average price received by producers declined to 26.8 cents/lb. In the previous year, the price rose during the first quarter of the marketing season and declined during the remainder of the 2001/02 season. In contrast, the base price was at its lowest level during the first part of the season, increasing marginally towards the end of October and remaining fairly constant during the remainder of the marketing year (Figure 2).

The average leaf grade decreased from 3.35 in 2000/01 to 2.9 in 2001/02 (Table 1). The first digit of the color grade, indicating the degree of reflectance, improved to an average of 2.52. The second digit of the color grade, indicating the degree of yellowness, improved slightly from 1.38 in 2000 to 1.35 for the 2001 crop year.

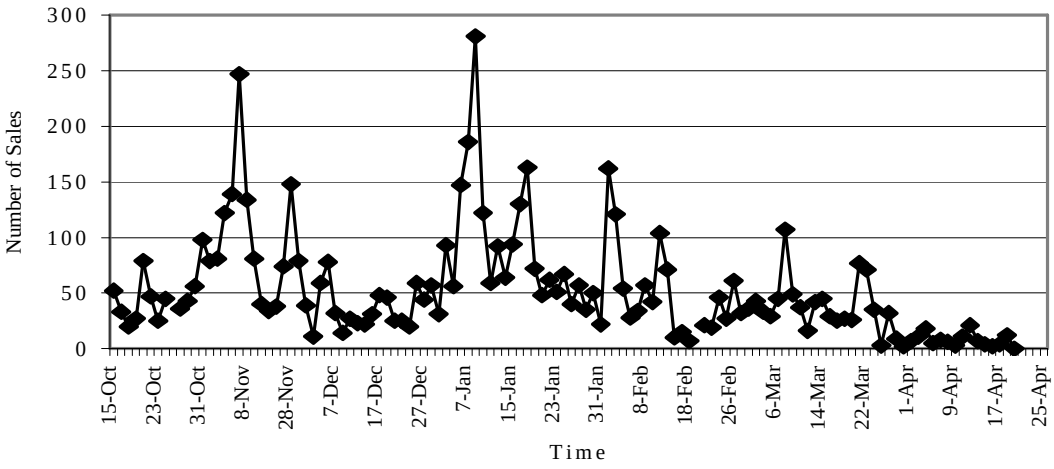


Figure 1: Daily Volume of Transactions for the 2001/02 Marketing Year.

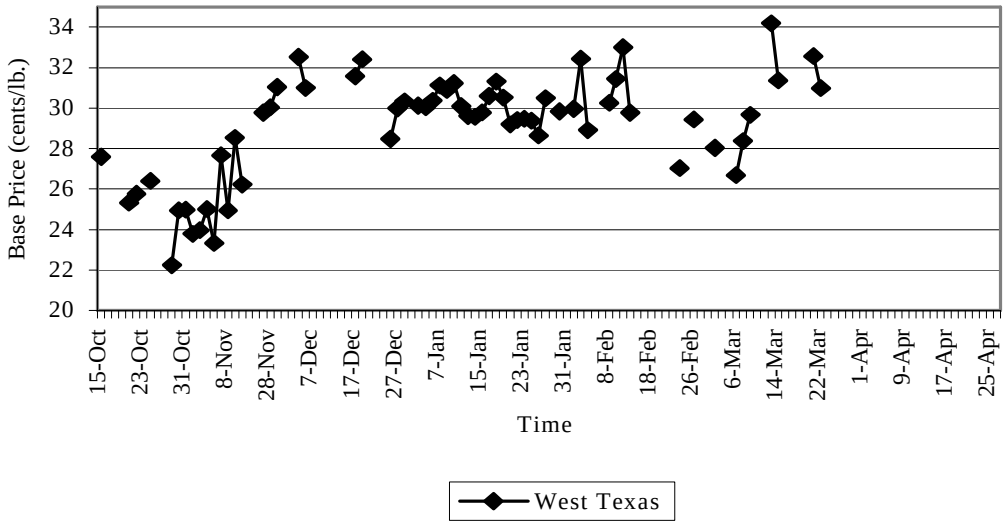


Figure 2: Movement of Base Prices for the 2001/02 Marketing Year, West Texas.

The average staple length improved to 33.5 32nds/inch from the 2000 to 2001 crop. Average strength increased from 27.00 grams/tex. to 28.31 grams/tex. Micronaire increased from 3.87 in 2000/01 to 4.41 in 2001/02.

Bark is reported as the percentage of bales having level 1 or 2 bark. Average level 1 bark increased from 0.30% to 9.55% and transactions with level 2 bark in 2001 were fewer than normal. Other extraneous matters is reported as the percentage of bales in a lot containing either level 1 or level 2 other extraneous matter (largely grass content). Average level 1 and 2 other extraneous matter observed in 2001 were insignificant. The incidence of level 1 preparation (reported as the percentage of bales) was observed at a limited level of .05%, while level 2 preparation was not observed.

Average 2001/2002 Prices, Premiums, and Discounts

The DPES utilizes an econometric model to disaggregate the price of cotton with respect to nine quality characteristics: leaf grade, color grade, staple length, strength, micronaire, uniformity, bark content, preparation, and other extraneous matter content. These are the same quality characteristics used by the USDA for the classification and grading of U.S. cotton through the 2001/02 marketing year. Parameter estimates obtained from the econometric model are used to calculate the daily premiums and discounts. Appendix A contains a more detailed discussion of the econometric procedures utilized.

A set of parameter estimates (see Appendix A), representing a weighted average of the estimates for the entire crop year, was used to calculate the premiums and discounts for the 2001/02 marketing year for the West Texas (Table 2) and East Texas/Oklahoma (Table 3) regions. The upper half of the table presents the color

Table 2. 2001/2002 Weighted Average Price Estimates from the DPES, West Texas

Yearly Weighted Average from the Daily Spot Cotton Price Estimates

Dept. of Ag. and Applied Econ., Texas Tech Univ. # Sales: 3960

Date: 2001 Year Region: West Texas # Bales: 304189

Color Grade and Strength Premiums and Discounts in Points/lb.[a]

	Staple Length										
Col Grade	28	29	30	31	32	33	34	35	36	37	38
11	-553	-457	-362	-268	-177	-88	-2	80	159	234	304
21	-551	-455	-360	-266	-175	-86	0	83	162	237	307
31	-551	-455	-360	-266	-175	-86	0	83	162	237	307
41	-551	-455	-360	-266	-175	-86	29.73[b]	83	162	237	307
51	-644	-552	-461	-371	-283	-197	-115	-35	41	113	180
61	-847	-763	-679	-597	-517	-439	-364	-291	-222	-156	-94
71	-1173	-1102	-1031	-961	-894	-827	-764	-702	-643	-588	-535
12	-703	-613	-524	-436	-350	-267	-186	-109	-35	35	101
22	-703	-613	-524	-436	-350	-267	-186	-109	-35	35	101
32	-730	-641	-553	-467	-382	-300	-220	-144	-71	-1	64
42	-790	-703	-618	-534	-451	-371	-294	-219	-148	-80	-17
52	-916	-834	-753	-674	-596	-521	-448	-377	-310	-247	-187
62	-1111	-1037	-964	-892	-822	-754	-688	-624	-563	-506	-452
23	-822	-736	-652	-569	-488	-409	-332	-259	-189	-122	-60
33	-870	-787	-704	-623	-544	-467	-392	-320	-252	-187	-126
43	-955	-875	-795	-718	-641	-567	-496	-427	-361	-299	-240
53	-1099	-1024	-951	-878	-808	-739	-672	-608	-547	-489	-435
63	-1296	-1229	-1164	-1099	-1036	-974	-915	-857	-803	-751	-702
34	-1090	-1015	-941	-869	-798	-729	-662	-597	-536	-478	-423
44	-1197	-1126	-1057	-988	-921	-856	-793	-732	-674	-620	-568
54	-1349	-1284	-1220	-1158	-1096	-1037	-979	-924	-871	-820	-773

Micronaire Differences Points/lb.

Mike Range	Disc.
<24	-720
25 - 26	-611
27 - 29	-441
30 - 32	-267
33 - 34	-150
35 - 49	0
50 - 52	-282
>53	-397

Leaf Grade Differences Points/lb.

Leaf Grade	Prem./ Disc.
1	112
2	78
3	40
4	0
5	-43
6	-89
7	-138

	Disc. Level 1	Disc. Level 2
Bark	-151	-151
Preparation	--	--
Other Ext. Matter	-1387	-1387

Uniformity Differences Points/lb.

Uniform	Disc./ Prem.
<77	-35
78	-27
79	-18
80	-9
81	0
82	9
83	18
84	27
85	--
>86	--

Strength Differences Points/lb.

Grams/ Tex.	Disc./ Prem.
<18	--
19	--
20	-391
21	-311
22	-239
23	-174
24 - 25	-94
26	-36
27 - 28	0
29	0
30	0
31	0
>32	0

[a]100 points = 1 cent

[b]Base Price in cents/lb.

Table 3. 2001/2002 Weighted Average Price Estimates from the DPES, East Texas, Oklahoma

Yearly Weighted Average from the Daily Spot Cotton Price Estimates

Dept. of Ag. and Applied Econ., Texas Tech Univ. # Sales: 1020

Date: 2001 Year Region: East Texas/Oklahoma # Bales: 60078

Color Grade and Strength Premiums and Discounts in Points/lb.[a]

	Staple Length										
Col Grade	28	29	30	31	32	33	34	35	36	37	38
11	-550	-454	-360	-267	-176	-88	-2	80	158	233	303
21	-548	-452	-358	-265	-174	-86	0	82	161	235	305
31	-548	-452	-358	-265	-174	-86	0	82	161	235	305
41	-548	-452	-358	-265	-174	-86	29.56[b]	82	161	235	305
51	-641	-549	-458	-369	-281	-196	-114	-35	41	112	179
61	-842	-758	-675	-594	-514	-437	-361	-289	-220	-155	-94
71	-1166	-1095	-1025	-956	-888	-823	-759	-698	-640	-584	-532
12	-699	-609	-521	-434	-348	-266	-185	-108	-35	35	101
22	-699	-609	-521	-434	-348	-266	-185	-108	-35	35	101
32	-726	-638	-550	-464	-380	-298	-219	-143	-70	-1	64
42	-786	-699	-614	-531	-449	-369	-292	-218	-147	-80	-17
52	-910	-829	-749	-670	-593	-518	-445	-375	-309	-245	-186
62	-1105	-1031	-959	-887	-817	-749	-684	-620	-560	-503	-449
23	-817	-732	-648	-566	-485	-406	-330	-257	-188	-121	-59
33	-865	-782	-700	-620	-541	-464	-390	-319	-250	-186	-125
43	-949	-870	-791	-713	-638	-564	-493	-424	-359	-297	-239
53	-1092	-1018	-945	-873	-803	-735	-668	-605	-544	-486	-432
63	-1289	-1222	-1157	-1093	-1030	-969	-909	-852	-798	-746	-698
34	-1084	-1009	-936	-864	-793	-724	-658	-594	-533	-475	-421
44	-1190	-1120	-1051	-983	-916	-851	-788	-728	-671	-616	-565
54	-1341	-1277	-1213	-1151	-1090	-1031	-973	-918	-866	-816	-769

Micronaire Differences Points/lb.

Mike Range	Disc.
<24	-716
25 - 26	-607
27 - 29	-439
30 - 32	-265
33 - 34	-149
35 - 49	0
50 - 52	-280
>53	-395

Leaf Grade Differences Points/lb.

Leaf Grade	Prem./ Disc.
1	111
2	77
3	40
4	0
5	-43
6	-89
7	-137

	Disc.	
	Level 1	Level 2
Bark	-150	-150
Preparation	--	--
Other Ext. Matter	-1379	-1379

Uniformity Differences Points/lb.

Uniform	Disc./ Prem.
<77	-35
78	-26
79	-18
80	-9
81	0
82	9
83	18
84	27
85	--
>86	--

Strength Differences Points/lb.

Grams/ Tex.	Disc./ Prem.
<18	--
19	--
20	-389
21	-309
22	-237
23	-173
24 - 25	-93
26	-35
27 - 28	0
29	0
30	0
31	0
>32	0

[a]100 points = 1 cent

[b]Base Price in cents/lb.

grade/staple matrix contains the discounts and premiums for color grade and staple length, and with base price at color grade 41 and staple length 34 (all other quality attributes held at the base levels). For example, the average base price for the West Texas region was 29.73 cents/lb. (100 points = 1 cent). For a color grade of 51 and staple length 33, the discount with respect to that base price was about 1.97 cents/lb. The bottom half of the table presents the average discounts for micronaire, bark, preparation and other extraneous matter content, and the premiums and discounts for strength and leaf grade.

The zeros in the premium and discount columns for micronaire, leaf, uniformity, and strength represent the base quality as defined by USDA through the 2001/02 marketing year.

Patterns of Premiums and Discounts

The following section summarizes the average premiums and discounts for each fiber quality attribute observed throughout the 2001/02 marketing year. The movements of the premiums and discounts of each individual attribute throughout the marketing year are presented and analyzed. While a specific quality attribute is being discussed, all other attributes are held at their base level. Seasonal patterns and comparisons are illustrated using the quality attribute premiums and discounts of the West Texas marketing region, which are not appreciably different from those of the East Texas/Oklahoma region.

Leaf Grade

Figure 3 presents the leaf grade 3 premiums for the 2001/02 marketing year. The variation in premiums was similar to that in the previous marketing year, with the majority of premiums (illustrated with leaf grade 3) fluctuating between 20 and 100 points/lb. throughout this marketing year. Figure 4 illustrates the average premiums and discounts associated with each leaf grade for the 2001/02 marketing year in comparison with the 2000/01 marketing year. Both the premiums for lower levels of leaf and discounts for high leaf levels in the 2001/02 marketing year showed a relative decrease.

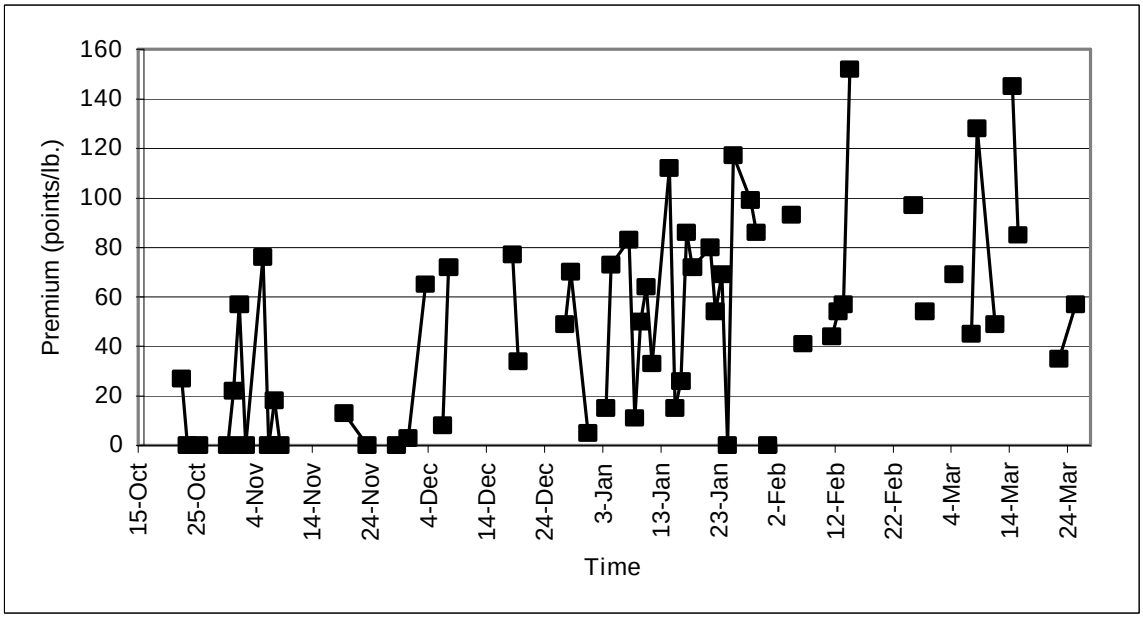


Figure 3: Leaf Grade 3 Premiums for the 2001/02 Marketing Year, West Texas.

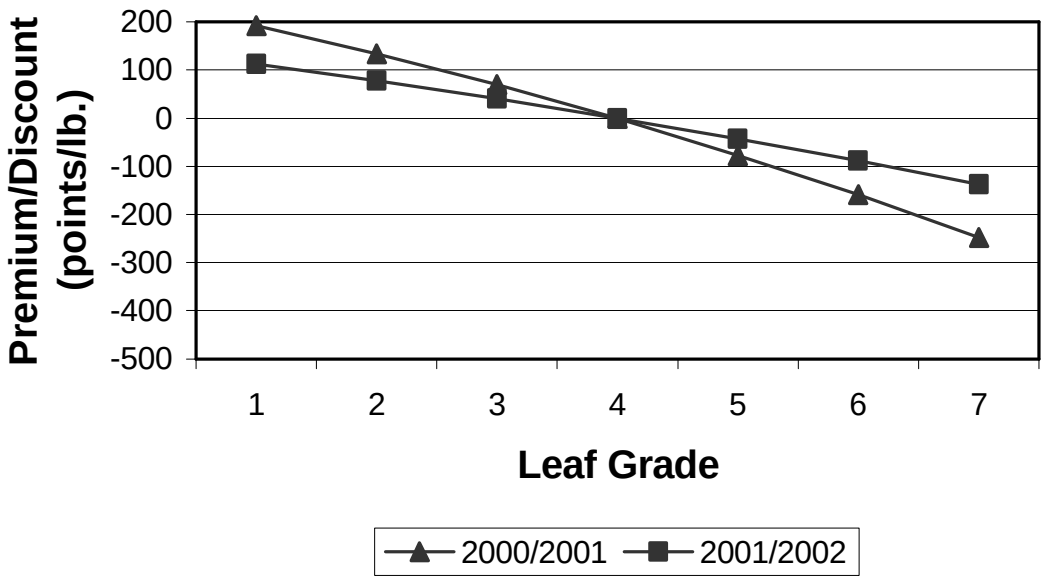


Figure 4: Leaf Grade Premiums/Discounts, 2001/02 and 2000/01, West Texas.

Color Grade

The discount for color grade 42 (Figure 5) remained erratic throughout the 2001/2002 marketing year. In comparison with prior marketing years, the 2001/2002 marketing year demonstrated nearly the exact impact on prices. During the months of November and December, the color grade varied and influenced prices more drastically with the majority of discounts falling between 200 and 400 points/lb. Figure 6 provides a comparison of the premiums and discounts for the first digit of the color grade for the 2001/02 and 2000/01 marketing years. On the average, discounts for the 2001/02 marketing year remained the same as for the 2000/01 marketing year and color grades 1, 2, and 3 again did not receive any premiums. This could be attributed to the abundance of cotton with the first digit of the color grade of 1, 2, and 3. Discounts for the second

digit of the color grade (Figure 7) also remained about the same when compared to the 2000 crop year.

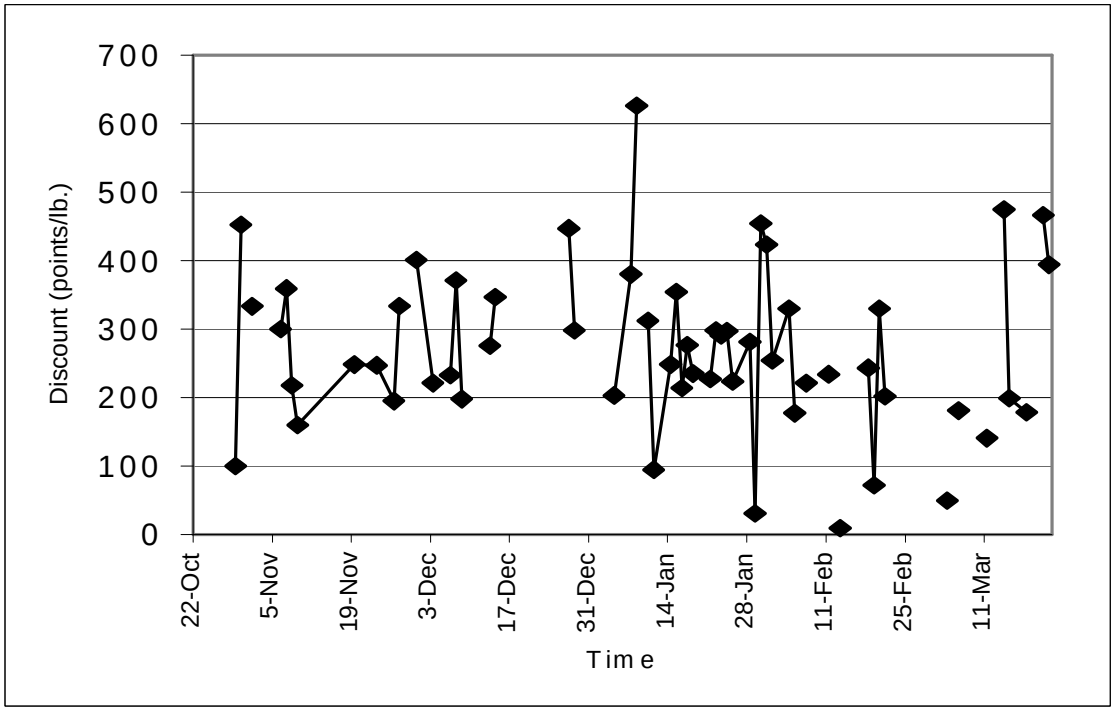


Figure 5: Color Grade 42 Discounts for the 2001/02 Marketing Year, West Texas.

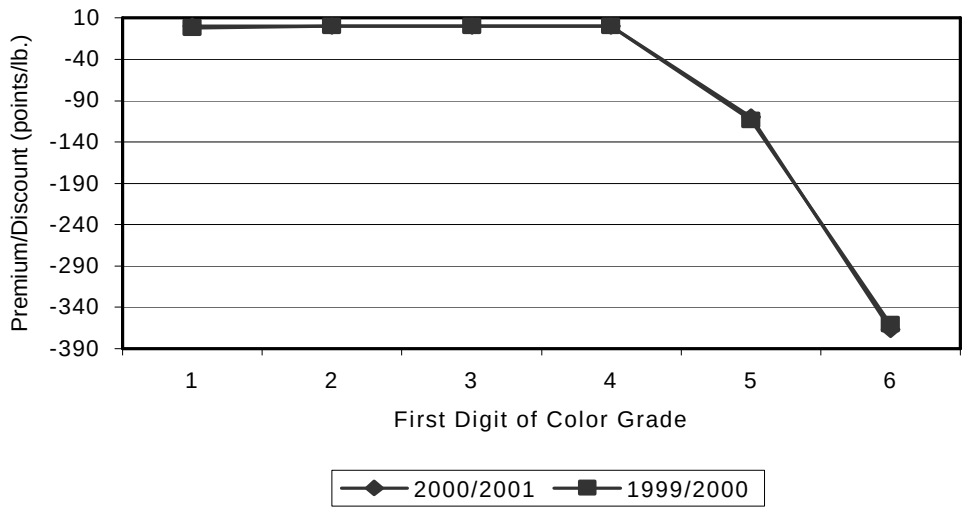


Figure 6: First Digit of the Color Grade Premiums/Discounts, 2001/02 and 2000/01, West Texas.

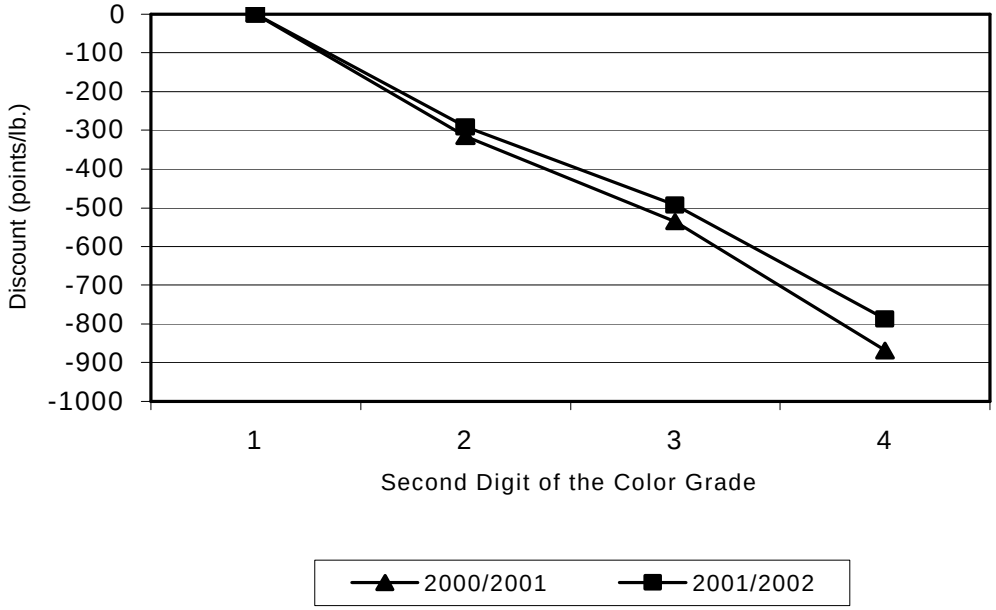


Figure 7: Second Digit of the Color Grade Discounts, 2001/02 and 2000/01, West Texas.

Staple

The discounts for staple length 33 in the 2001/02 marketing year were as stable as those from the 2000/01 marketing year. They exhibited a narrow range throughout the season which fluctuations remaining between 50 to 100 points/lb, except the Transactions for the 20 through the 25 of February (Figure 8).

Figure 9 illustrates that lower staple levels were discounted less severely in the 2001/02 marketing year than in the 2000/01 year, while higher staple levels received slightly lower premiums than the previous year.

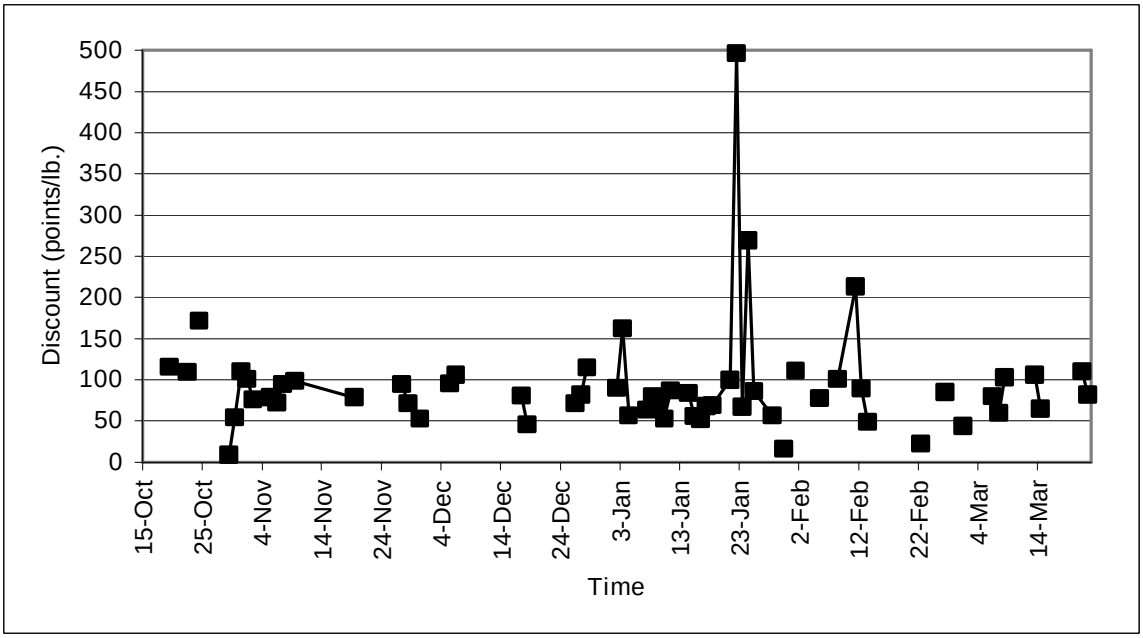


Figure 8: Staple Length 33 Discounts for the 2001/02 Marketing Year, West Texas.

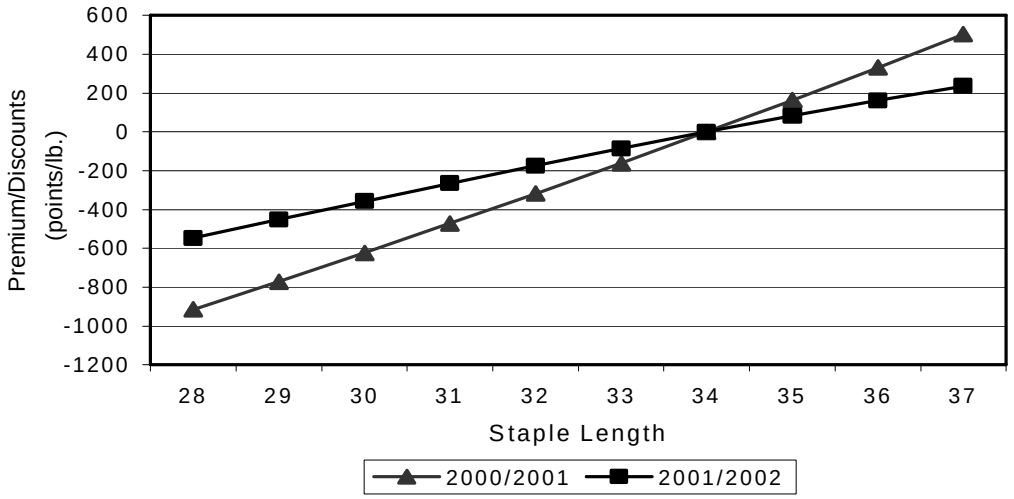
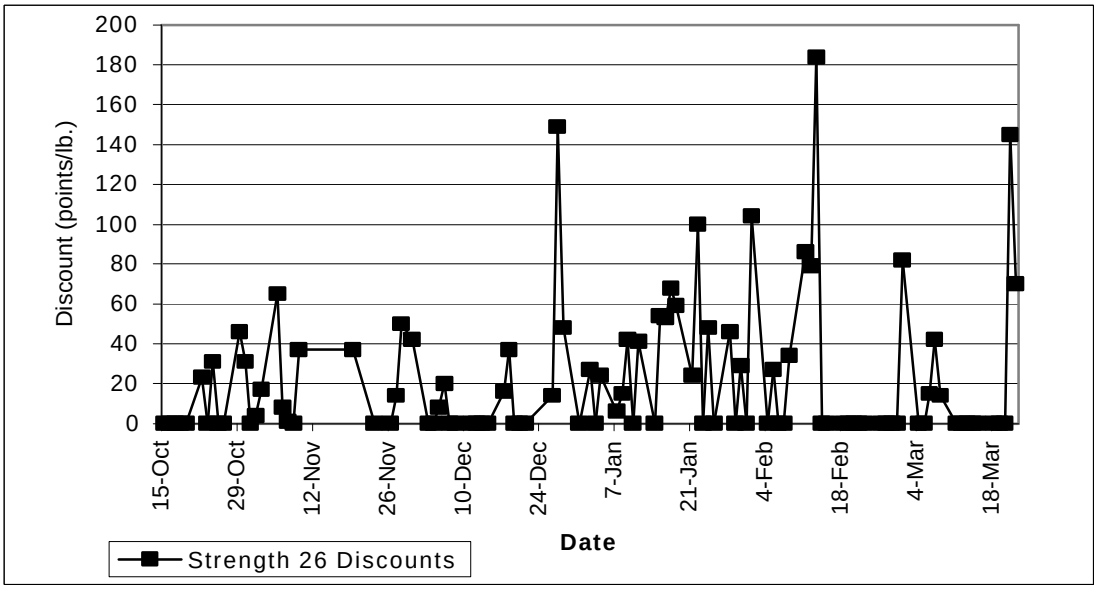


Figure 9: Staple Length Premiums/Discounts, 2001/02 and 2000/01, West Texas.

Strength

Figure 10 provides an illustration of the pattern of discounts for strength 26, which exhibited wide fluctuations during the 2001/02 marketing year. There were few days during the 2001/02 marketing year when strength did not have any impact on price (Figure 10). Figure 11 has been adjusted from the previous year because of the grading changes. Now that 27-28 grams/tex. is the base, 26 is the digit used for comparison. Lower levels of strength were discounted more severely for the 2001/02 marketing year, while higher levels of strength received no premiums (Figure 11). The trend of a decrease in the premium for higher levels of strength could be the market's way of adjusting to the grading changes that took place in 2000.



.Figure 10: Strength 26 Discounts for the 2001/02 Marketing Year, West Texas

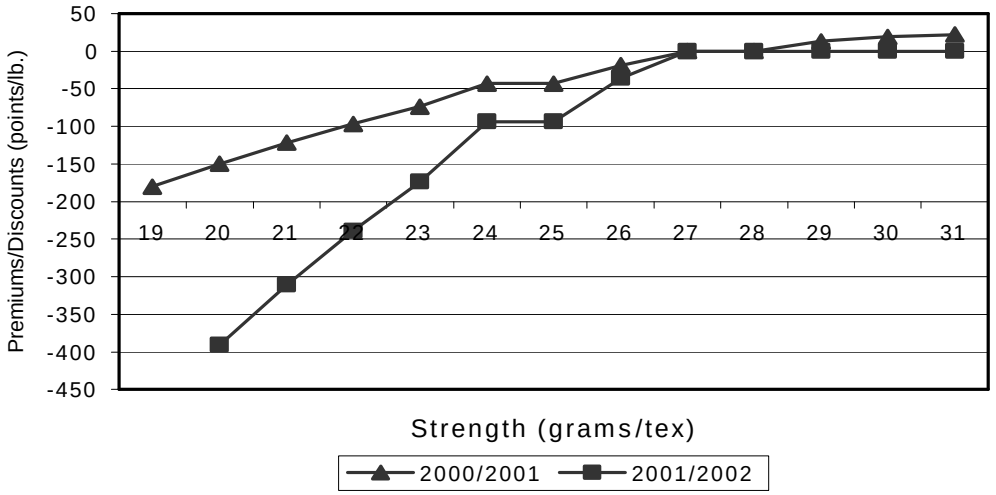


Figure 11: Strength Premiums/Discounts, 2001/02 and 2000/01, West Texas.

Micronaire

Discounts for micronaire 3.35 in 2001/2002 showed a more erratic pattern compared to that of the previous year (Figure 12), ranging mostly between the 50 and 250 points/lb. The discounts for low ranges and the high ranges of micronaire were relatively lower in the 2001/02 marketing year compared to the previous year (Figure 13).

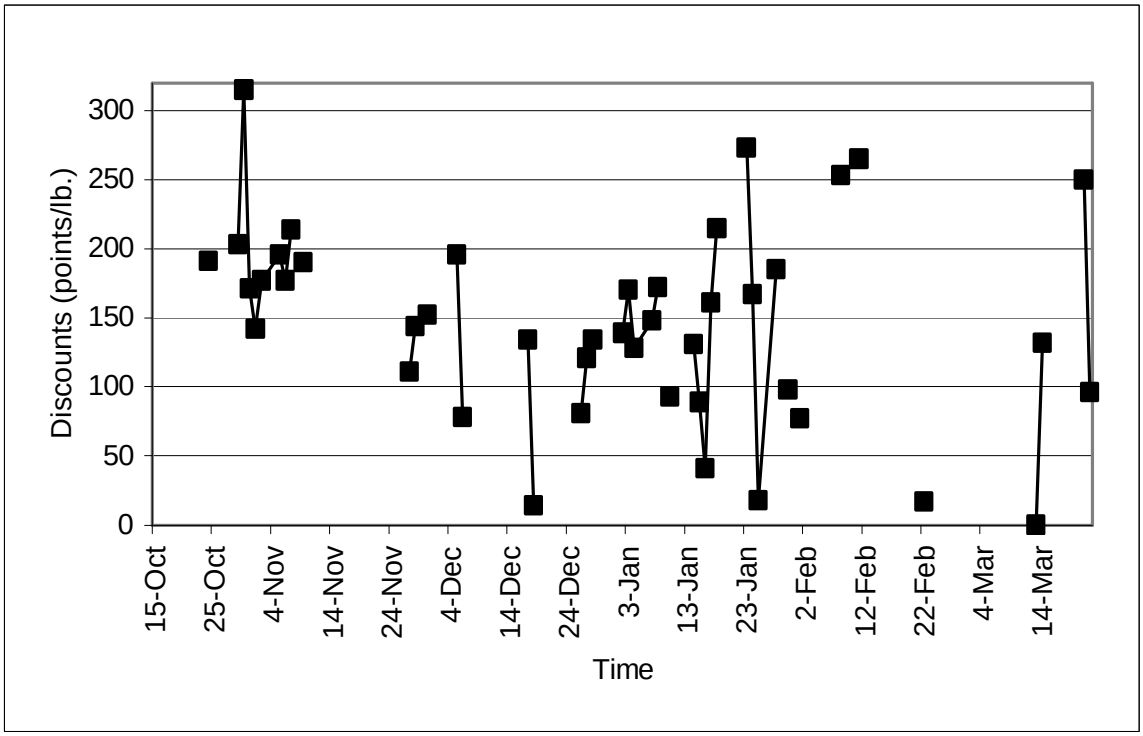


Figure 12: Micronaire 3.35 Discounts for the 2001/02 Marketing Year, West Texas.

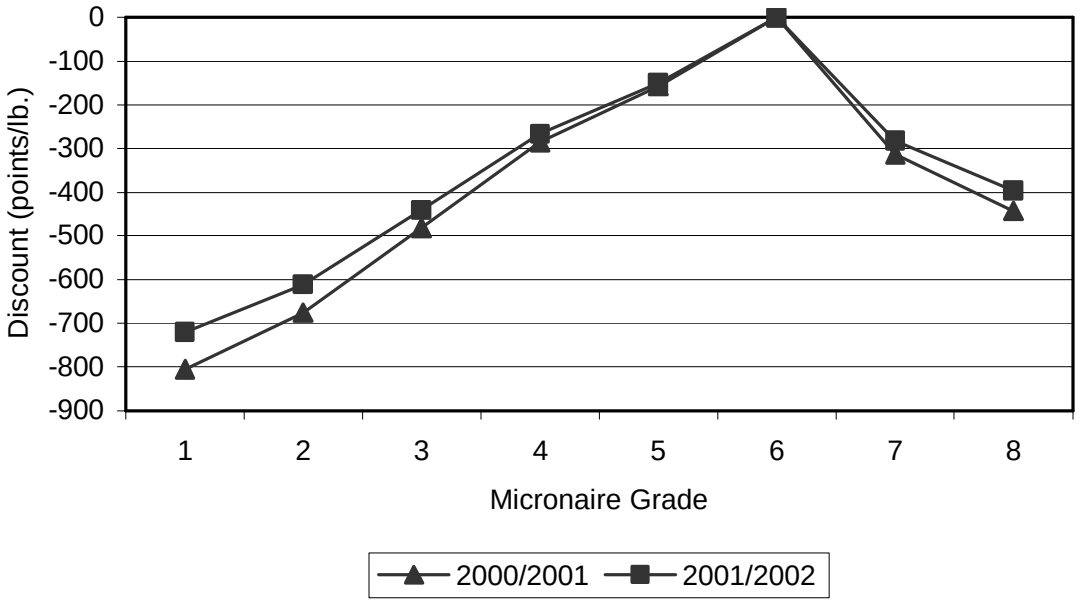


Figure 13: Micronaire Discounts, 2001/02 and 2000/01, West Texas.

Bark and Other Extraneous Matter

Discounts for level 1 bark fluctuated widely throughout the year (Figure 14). The majority of the season's discounts fell within the range of 0 and 400 points/lb., which is higher than the 2000/01 marketing year. There were many days when the level of bark did affect the price. Figure 15 illustrates a comparison of level 1 bark discounts between the 2001/02 and 2000/01 marketing years. The 2001 crop discounts for level 1 bark were slightly lower than during the previous year (Figure 15). The incidence of other extraneous matter was observed in a very small quantity for the 2001 crop season, which makes it difficult to interpret and draw conclusions on the patterns of these attributes.

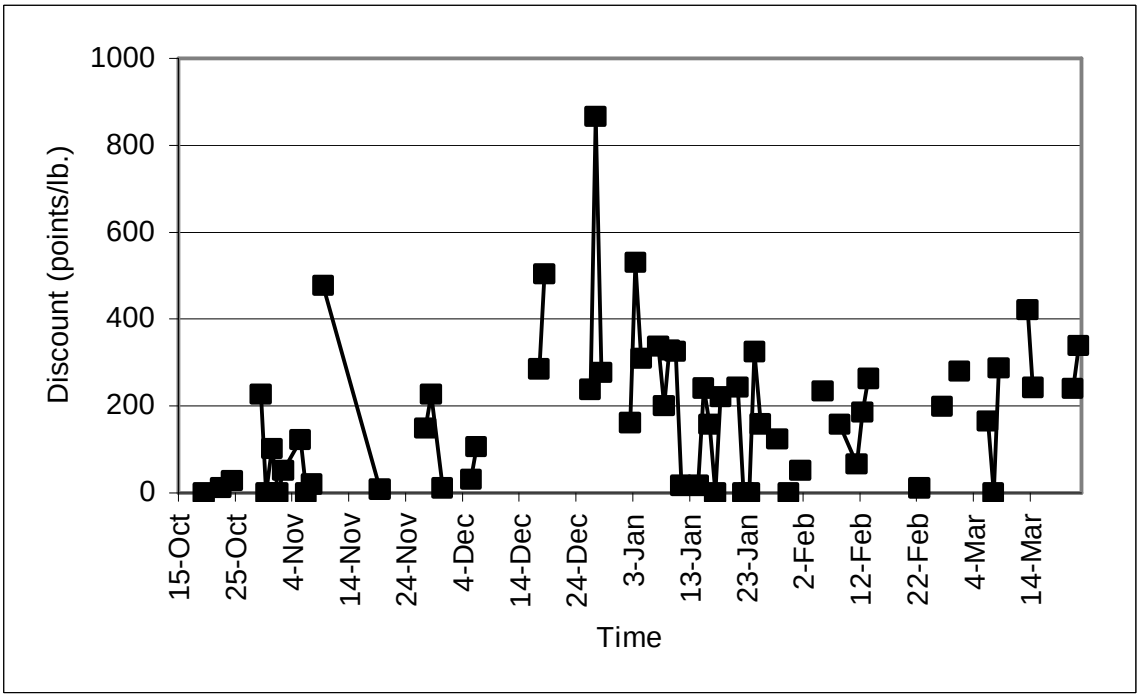


Figure 14: Level 1 Bark Discounts for the 2001/02 Marketing Year, West Texas.

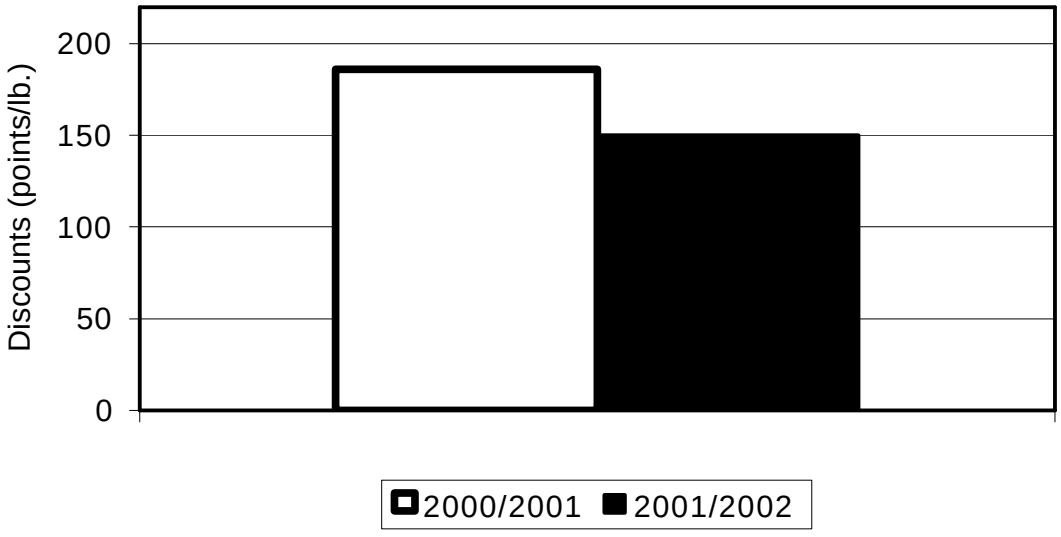


Figure 15: Level 1 Bark Discounts, 2001/02 and 2000/01, West Texas.

Uniformity and Preparation

Figure 16 shows that discounts for uniformity 80 in the 2001/02 marketing year were erratic. Figure 17 illustrates the relationship between the 2001/02 crop year and the 2000/01 crop year for uniformity, indicating that the lower levels of uniformity were not discounted as much as in the previous crop year. The incidence of preparation was observed in a very small quantity for the 2001 crop season, which makes it difficult to interpret and draw conclusions on the pattern of this attribute.

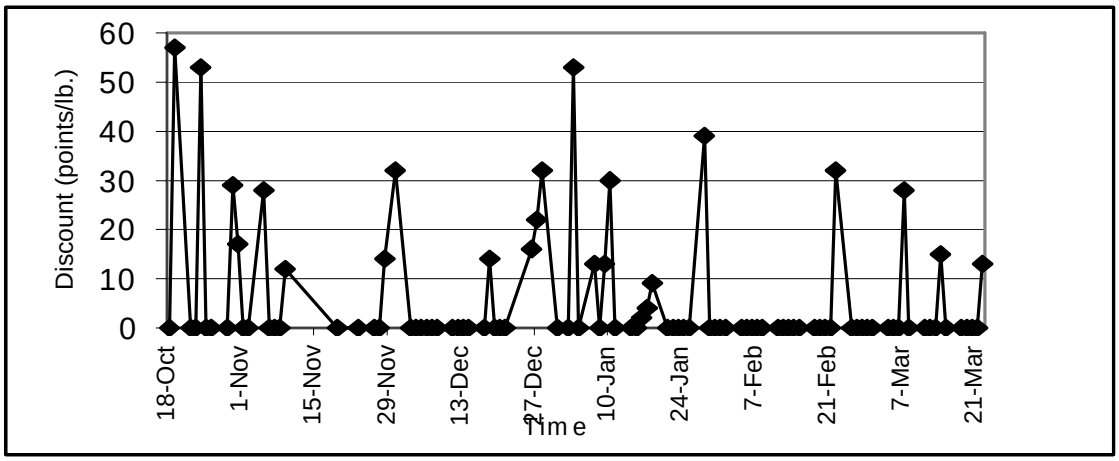


Figure 16: Uniformity 80Discounts, 2001/02 Marketing Year, West Texas.

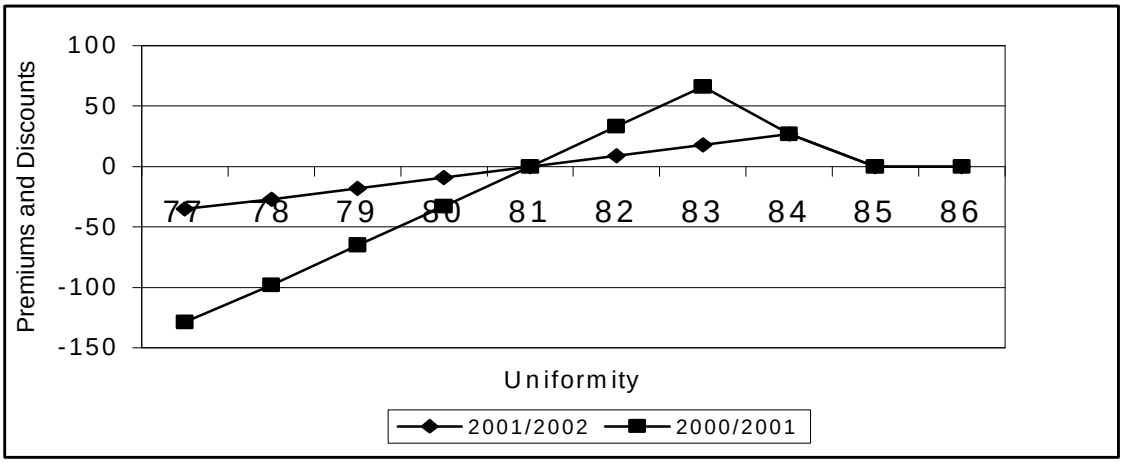


Figure 17: Uniformity Discounts, 2001/02 and 2000/01, West Texas.

Summary

The average price for the 2001/02 marketing year decreased to a level even lower than the 1999/00 marketing year. In comparison to the 2000/01 marketing year the average price decreased by 24.10 cents/lb from 55.82 cents/lb to . Although prices at the beginning of the 2001 season were below the level of the previous year's ending price, producer prices gradually increased to the 30 cent/lb. range where it remained for the rest of the season. There was a four year low price observed during the 2001 season, the volume of sales transaction were much higher than those of the previous year, this is likely due to the number of bales held over from the previous year. The volume of producer spot market sales as recorded by the DPES showed a 64% increase in 2001/02 from the 2000/01 marketing year.

Overall, the 2001 crop for Texas and Oklahoma was similar to that of the previous year in quality. In comparison to the 2000/01 marketing year, discounts and premiums decreased for all quality attributes except for the strength. While lower levels of strength were discounted more severely, higher levels of strength did not receive any premium.

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Appendix A

The DPES Model and Yearly Parameter Estimates

The Daily Price Estimation System is a computerized econometric model based on the theory of hedonic price analysis (Brown and Ethridge, 1995). The premise of this approach is that the value of a commodity is determined by the value of the utility-bearing characteristics that comprise the commodity. The implicit prices of these characteristics may be determined by disaggregating the price of the commodity into its measurable characteristic components. In the DPES, the relationship between the price of cotton and its various measurable quality attributes is estimated using a nonlinear regression model. The equation used for regression analysis is:

$$P = \beta_0 e^{\beta_1 LF + \beta_2 LF^2 + \beta_3 RD + \beta_4 RD^2 + \beta_5 PB + \beta_6 PB^2 + \beta_7 UNI + \beta_8 STA + \beta_9 STA^2 + \beta_{10} STR + \beta_{11} STR^2}$$

$$e^{\beta_{12} M + \beta_{13} M^2 + \beta_{14} LB + \beta_{15} LB^2 + \beta_{16} HB + \beta_{17} LO + \beta_{18} HO + \beta_{19} PA + \beta_{20} PB + \beta_{21} R}$$

The variable definitions and parameter estimates are presented in Appendix Table A1.

At the end of each marketing year, the data for that year are compiled and diagnostic tests are run on the model. The purpose of running diagnostics tests is to detect any systematic error that might have occurred in the DPES, but which remained undetected in the daily diagnostics. The model specification above is the result of the year-end diagnostic analysis for the 2001/02 marketing year. The procedures of Brown et al. (1995) indicated that this model specification best fits the 2001/02 marketing year data. The parameters of the model for the 2001/02 year model were computed by weighting the individual estimates for each day by the number of sales transactions during that day.

Appendix Table A1: Definition of Variables and Parameter Estimates for the 2001/2002 Marketing Year Model.

Dependent Variable = Log(Price)

Definition of the Variables	Variables	Parameters	Estimates
Constant Term		$?_0$	0.00358
Average leaf grade (1 through 7)	LF	$?_1$	-0.00934
Average leaf grade squared	LF^2	$?_2$	-0.00059
Average RD	RD	$?_3$	0.09006
Average RD squared	RD^2	$?_4$	-0.00055
Average PlusB	PB	$?_5$	-0.00920
Average PlusB squared	PB^2	$?_6$	-0.00025
Percentage uniformity length	UNI	$?_7$	0.09368
Average staple length (32nds of an inch)	STA	$?_8$	-0.00096
Average staple length squared	STA^2	$?_9$	0.80110
Average strength of the cotton (grams/tex)	STR	$?_{10}$	-0.09804
Average strength squared	STR^2	$?_{11}$	0.10431
Average micronaire reading	M	$?_{12}$	-0.00180
Average micronaire squared	M^2	$?_{13}$	0.00300
Percentage of bales classed as level 1 bark	LB	$?_{14}$	-0.06653
Percentage of bales classed as level 1 bark squared	LB^2	$?_{15}$	0.01438
Percentage of bales classed as level 2 bark	HB	$?_{16}$	-0.02126
Percentage of bales classed as level 1 other extraneous matter	LO	$?_{17}$	-0.62857
Percentage of bales classed as level 2 other extraneous matter	HO	$?_{18}$	-0.06955
Percentage of bales classed as level 1 preparation	PA	$?_{19}$	-0.67622
Percentage of bales classed as level 2 preparation	PB	$?_{20}$	0.0
Region (R=0 for West Texas, R=1 for East Texas and Oklahoma)	R	$?_{21}$	-0.00576