



# **COTTON INCORPORATED**

**USA COTTON QUALITY  
MEASUREMENTS AND ANALYSIS**

**2003-4 UPLAND CROP**

**Final Report**

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**FIBER QUALITY RESEARCH**

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# QUALITY SUMMARY 2003 USA UPLAND CROP

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The following table gives a summary of the quality of the 2003 USA upland cotton crop. These data were obtained from the weekly reports issued by the USDA (United States Quality of Cotton Classed under Smith-Doxey Act; Agricultural Marketing Service, Cotton Program, United States Department of Agriculture, Memphis, Tennessee).

Human classing of color was replaced by HVI colorimeter readings in 2000. The HVI reads the color in terms of "Rd, and "+b," and plots these values onto the standard color grading chart (see p. 10 for [chart](#)) to attain the color grades. The upper portion of each chart on the following pages list, by classing office, the percentage of bales that were placed in these various grades by the HVI. The "White Grades" section has three columns that give the percentages of bales placed into grades 11, 21, or 31 (MID+), 41 (SLM), and grades 51, 61, or 71 (LM-). The "TOTAl" column gives the total percentage of bales classified as "White" at each classing office. The "Light Spotted Grades" section gives percentages of bales classified into groups 12, 22, or 32 (MID+), 42 (SLM), and 52 or 62 (LM-). The "TOTAl" column gives the total percentage of bales classified as "Light Spotted" at each classing office. The "Other Grades" column includes all bales at each classing office that were classed as "Spotted", "Tinged", "Yellow Stained", or "Below Grade". The "% Barky Grades" column lists the percentage of bales from each classing office contained bark.

In 1993, the classer grading system was changed. Under the old system of grading, the classer determined a composite grade of color and trash content; and bales that contained bark and grass were reduced one or more grade levels. Under this system, the HVI determines a color grade, while a human classer determines a leaf (trash) grade and notes whether there is bark or grass present in the bale without any reduction in grade. Each color grade percentage listed includes all levels of leaf. For example, the 52.0% of the bales classed in Florence, SC in 2003 with SLM white color grade includes all bales at all leaf levels (2-7 leaf) with SLM white color.

The lower portion of the chart lists the average physical properties at each classing office. Micronaire (MIC), length (LEN), length uniformity index (LUI), strength (STR) and TRASH are measurements taken by the High Volume Instruments (HVI). The TRASH measurement is an estimate of the percent of the surface of the sample covered by the trash. The maturity ratio and fineness data are derived from random samples submitted each week by the classing offices and tested using the Shirley Fineness and Maturity Tester (FMT).

The number of bales graded at each classing office is also given.

The summary data for [2002](#) is also included for comparison purposes. Following the summary tables is a brief analysis of the trends and distributions in the US crop in yield, micronaire, length, length uniformity index, and color grade. Regional and classing office data are available in the [Appendix](#).

# QUALITY SUMMARY OF USA UPLAND COTTON - 2003

CLASSING OFFICE	PERCENT OF BALES									
	WHITEGRADES				LIGHT SPOTTED GRADES				OTHER GRADES	BARKY GRADES
	MID+	SLM	LM-	TOT	MID+	SLM	LM-	TOT		
Florence, SC	45.5	52.0	0.9	98.4	0.5	0.9	0.1	1.5	0.1	1.4
Macon, GA	31.9	59.6	4.0	95.5	0.4	2.9	1.0	4.3	0.2	1.3
Birmingham, AL	55.1	39.6	1.6	96.3	0.6	2.1	0.6	3.3	0.4	2.4
Rayville, LA	65.7	29.7	0.5	95.9	1.0	2.3	0.5	3.8	0.3	0.9
Memphis, TN	75.2	21.2	0.8	97.2	1.1	1.1	0.2	2.4	0.4	0.7
Dumas, AR	65.1	30.0	0.7	95.8	1.7	2.0	0.3	4.0	0.2	0.5
C. Christi, TX	63.2	19.2	2.2	84.6	5.5	5.0	1.4	11.9	3.5	6.3
Abilene, TX	76.1	8.5	0.3	84.9	9.1	3.4	0.2	12.7	2.4	7.0
Lubbock, TX	94.2	0.6	0.0	94.8	4.5	0.1	0.0	4.6	0.6	1.5
Lamesa, TX	90.5	2.0	0.0	92.5	6.0	0.3	0.0	6.3	1.2	2.8
Phoenix, AZ	83.6	8.7	0.2	92.5	3.9	2.6	0.2	6.7	0.8	6.1
Visalia, CA	94.3	2.4	0.5	97.2	1.8	0.4	0.1	2.3	0.5	0.3
<b>AVERAGE</b>	67.8	25.6	1.1	94.5	2.5	1.9	0.4	4.8	0.7	

	MIC unit	LEN 32/in	L.UI (%)	STR g/t	TRASH (%)	MAT RAT	FIN mtex	LGRD INDEX	NO. BALES	LEN inch
Florence, SC	4.1	34.6	81.3	27.9	0.49	0.88	174	3.3	1,425,162	1.08
Macon, GA	4.3	34.2	80.5	27.9	0.46	0.95	174	3.3	2,086,838	1.07
Birmingham, AL	4.3	34.3	81.2	28.1	0.52	0.92	180	3.5	876,746	1.07
Rayville, LA	4.8	34.6	81.0	28.5	0.45	0.99	184	3.3	1,106,215	1.08
Memphis, TN	4.5	34.6	81.8	28.0	0.42	0.92	189	3.3	2,824,793	1.08
Dumas, AR	4.7	34.7	81.7	28.3	0.48	0.98	191	3.4	2,420,494	1.08
C. Christi, TX	4.5	35.4	81.6	30.6	0.41	1.00	174	3.2	1,174,075	1.11
Abilene, TX	4.4	33.9	80.5	28.3	0.33	0.99	181	2.9	1,178,260	1.06
Lubbock, TX	4.4	33.9	80.9	29.1	0.23	0.93	171	2.4	1,506,089	1.06
Lamesa, TX	4.4	34.2	80.7	29.1	0.26	0.97	177	2.6	646,480	1.07
Phoenix, AZ	4.7	35.4	80.5	29.0	0.25	1.00	181	2.3	657,471	1.11
Visalia, CA	4.1	37.3	82.0	32.6	0.23	0.95	157	2.4	1,387,332	1.17
<b>AVERAGE</b>	4.44	34.7	81.3	28.8	0.39	0.95	178	3.1	17,289,955	1.09

## FINAL 2003

\*Number of physical bales, not calculated by weight. 17.3 million **physical bales** = ~17.8 million **480-lb bales**.

# QUALITY SUMMARY OF USA UPLAND COTTON - 2002

CLASSING OFFICE	PERCENT OF BALES									
	WHITEGRADES				LIGHT SPOTTED GRADES				OTHER GRADES	BARKY GRADES
	MID+	SLM	LM-	TOT	MID+	SLM	LM-	TOT		
Florence, SC	3.6	39.3	20.8	63.7	0.9	17.0	13.6	31.5	4.8	0.6
Macon, GA	9.4	41.4	12.9	63.7	1.6	13.9	13.5	29.0	7.3	1.6
Birmingham, AL	6.3	23.5	13.7	43.5	2.0	19.7	22.6	44.3	12.2	2.9
Rayville, LA	20.2	33.6	12.0	65.8	3.0	11.2	14.0	28.2	6.0	1.0
Memphis, TN	21.5	49.6	4.1	75.2	6.4	14.6	1.3	22.3	2.5	0.7
Dumas, AR	17.2	45.2	13.4	75.8	2.0	12.0	8.1	22.1	2.1	1.0
C. Christi, TX	56.2	28.4	4.2	88.8	2.8	4.6	2.1	9.5	1.7	2.7
Abilene, TX	39.6	37.3	4.3	81.2	6.7	9.0	1.5	17.2	1.6	17.8
Lubbock, TX	45.3	34.5	0.8	80.6	9.2	8.0	0.4	17.6	1.8	17.3
Lamesa, TX	49.3	33.8	1.4	84.5	10.1	3.4	0.2	13.7	1.8	11.9
Phoenix, AZ	84.1	10.8	0.4	95.3	2.4	1.5	0.3	4.2	0.5	4.8
Visalia, CA	96.3	1.5	0.5	98.3	1.0	0.2	0.1	1.3	0.4	0.5
<b>AVERAGE</b>	35.1	34.9	6.9	77.0	4.4	10.1	5.4	19.9	3.1	

	MIC unit	LEN 32/in	L.UI (%)	STR g/t	TRASH (%)	MAT RAT	FIN mtex	LGRD INDEX	NO. BALES	LEN inch
Florence, SC	4.7	33.5	80.7	26.9	0.50	0.96	177	3.7	997,988	1.05
Macon, GA	4.9	33.9	81.0	27.5	0.47	1.00	186	3.6	1,579,967	1.06
Birmingham, AL	4.7	33.7	80.8	27.0	0.48	0.96	180	3.5	602,962	1.05
Rayville, LA	4.9	34.5	81.4	27.4	0.42	1.01	190	3.3	800,652	1.08
Memphis, TN	4.7	34.6	81.7	28.1	0.41	0.97	189	3.5	2,588,279	1.08
Dumas, AR	4.8	34.7	81.9	27.8	0.44	0.97	190	3.4	2,222,776	1.08
C. Christi, TX	4.6	34.7	81.3	29.4	0.38	1.05	170	3.2	836,810	1.08
Abilene, TX	4.3	33.2	80.4	28.8	0.43	0.97	166	3.5	1,065,816	1.04
Lubbock, TX	4.3	33.4	80.8	28.8	0.48	0.97	166	3.8	2,711,976	1.04
Lamesa, TX	4.3	33.3	80.5	29.2	0.41	0.96	162	3.4	565,195	1.04
Phoenix, AZ	4.6	35.4	80.6	28.9	0.21	1.00	182	2.2	736,612	1.11
Visalia, CA	4.2	37.0	82.1	33.2	0.19	1.01	157	2.4	1,343,895	1.16
<b>AVERAGE</b>	4.58	34.3	81.2	28.6	0.41	0.99	177	3.4	16,052,928	1.07

**FINAL 2002**

\*Number of physical bales, not calculated by weight. 16.0 million **physical bales** ~ 16.5 million **480-lb bales**.

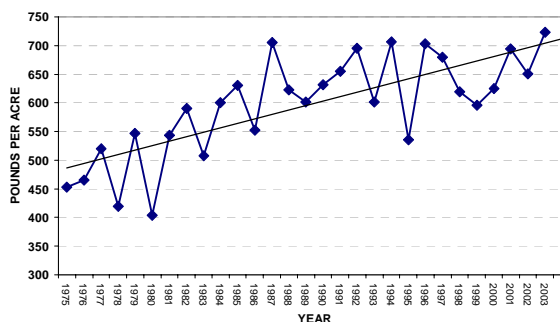
# QUALITY TRENDS IN USA UPLAND COTTON

The following is a brief analysis of the quality of USA upland cotton crop for the 2003 season. Data on fiber properties come from the USDA publication, "Quality of Cotton Classed under the Smith-Doxey Act," which is issued weekly during the harvest season. Information on yield and production is published by the USDA, Economics and Statistics System.

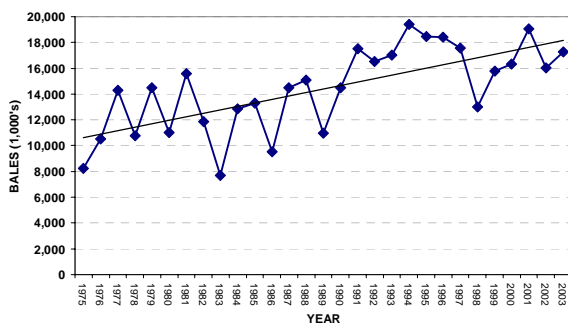
## YIELD and PRODUCTION

The final 2003 crop yield estimate was placed at 723 pounds per acre-- a record high, and a great improvement over last year's yield of 652 pounds per acre. Examining the trend as far back as 1975, yields have been increasing at a rate of 7.8 pounds per year. Yield improvements have leveled off more recently, and the rate of increase over the past ten years is 4.3 pounds per year.

**LONG TERM YIELD TREND  
USA UPLAND**



**LONG TERM PRODUCTION TREND  
USA UPLAND**

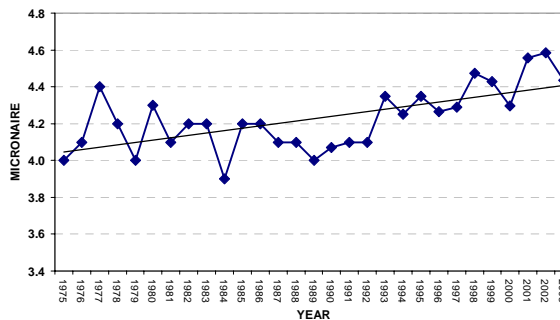


U.S. Production dropped in 2003, with approximately 17.8 million\* bales of upland cotton, about 1.3 million bales over 2002's production.

## MICRONAIRE

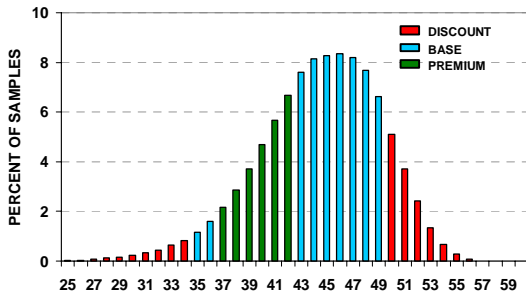
The final US micronaire average for 2003 is 4.44, a dramatic drop from 2002's high of 4.58. Better crop conditions in the Southeast were a main contributor to the improved micronaire for 2003, as that region dropped over 0.5 units from 2002 levels. The greater availability of lower micronaire, high yielding varieties also appears to have played a role, and it remains to be seen if the upward trend has been reversed.

**LONG TERM MICRONAIRE TREND  
USA UPLAND**



\*This value differs from what is reported on USDA's Smith-Doxey report. The Smith-Doxey (which supplies the information for our Crop Quality Report) reports the number of actual, or "running" bales classed. To enable long-term comparisons, bale totals are adjusted to 480-pound "statistical" bales.

**MICRONAIRE DISTRIBUTION  
USA UPLAND**



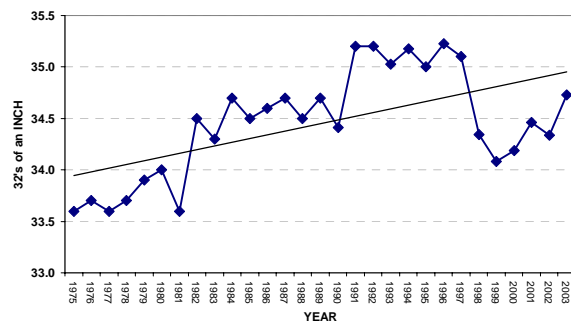
Higher micronaire cotton is still plentiful, with 28% of the crop at 4.8 or higher.

As is the case for all fiber properties, micronaire levels across the belt vary widely, so the US data is not necessarily indicative of what is occurring in a specific region. For regional trends and distributions, see the [Appendix](#).

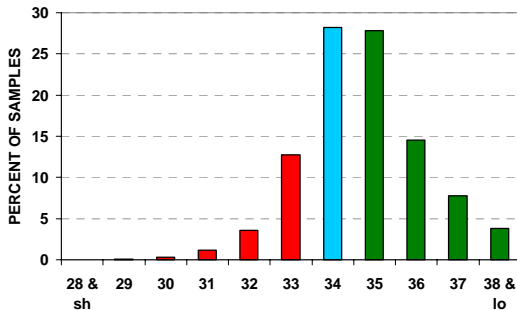
**LENGTH**

The 2003 crop has an average staple length of 34.7/32s of an inch (1.09 inches). This is a large improvement over 2002's length of 34.3/32s, and brings the crop nearly to the levels attained in the mid 1990's. There is a large amount of long cotton available in the 2003 crop, with approximately 26% of the crop at 36 staple or longer ( $\geq 1.11$  inches), while just under 18% of the crop is 33 staple or shorter ( $\leq 1.04$  inches).

**LONG TERM STAPLE LENGTH TREND  
USA UPLAND**



**LENGTH DISTRIBUTION  
USA UPLAND**



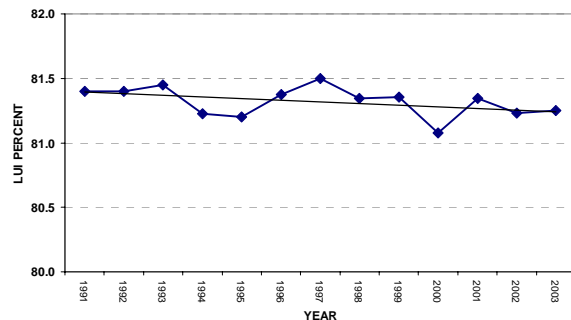
All regions of the cotton belt showed gains in length or maintained their length from the previous crop year. For charts displaying the regional trends and distributions in staple length, see the [Appendix](#).

**LENGTH UNIFORMITY INDEX**

The 2003 crop has an average length uniformity index of 81.3%, only a slight improvement over 2002's level of 81.2%. Length uniformity has been relatively stable for as long as it has been reported, beginning in 1991.

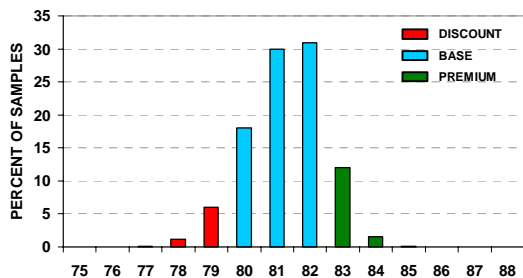
A substantial portion of the US crop avoids a discount in terms of loan value for length uniformity, with the bulk of it being at the "base"\* level of 80 to 82 length uniformity index. Just 7.4% of the crop is in the discount\*

**TEN YEAR LUI TREND  
USA UPLAND**



\*Based on 2003 CCC Cotton Loan Premium and Discount Schedule

**LENGTH UNIFORMITY DISTRIBUTION  
USA UPLAND**



range of 79 or lower, while 13.7% is in the premium range of 83 or higher.

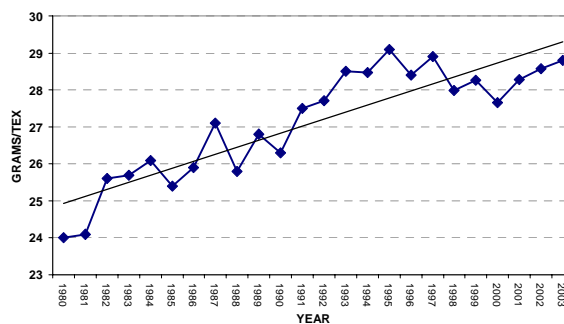
Length uniformity saw the greatest improvement in South Texas in 2003, while drops were seen in the Mid-south and California-Arizona regions. For charts displaying the regional trends and distributions in length uniformity index, see the [Appendix](#).

**STRENGTH**

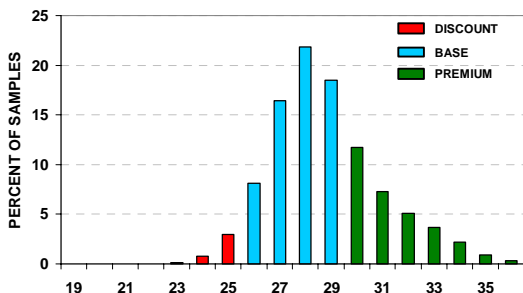
The average strength for the 2003 crop is 28.8 grams/tex, continuing the increases of the last three crop years. Since HVI strength records began in 1980, the annual increase in strength has been 0.19 grams/tex per year.

The majority of the crop for 2003 is above the discount\* level, with only 3.9% of the crop at 25 grams/tex (rounded) or weaker. There is a large

**LONG TERM STRENGTH TREND  
USA UPLAND**



**STRENGTH DISTRIBUTION  
USA UPLAND**



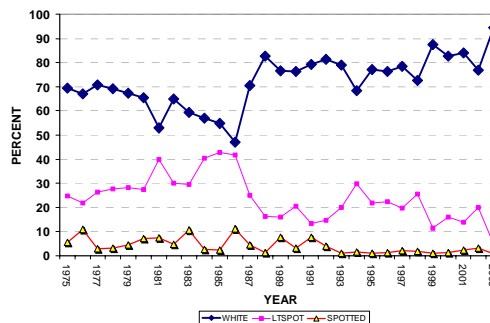
amount of strong cotton available for 2003, with 31.2% of the crop is at the premium strength of 30 grams/tex (rounded) or stronger.

All regions of the cotton belt saw improvement or stability in strength, except for the San Joaquin Valley, which saw a slight decrease of 0.6 grams/tex. Charts displaying regional strength trends and distributions are located in the [Appendix](#).

**COLOR GRADES**

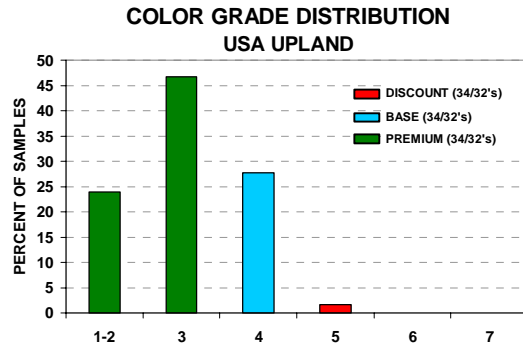
The 2003 crop reached a record for color grade, with 94.5% classified as White. This was a vast improvement over the weather-ravaged crop of 2002. The greatest improvements in color grade were seen in the Southeast, where the percent of white grades increased from 60% in 2002 to 96.6% in 2003.

**LONG TERM COLOR GRADE TREND  
USA UPLAND**



\*Based on 2003 CCC Cotton Loan Premium and Discount Schedule

Note: Beginning in 1993, the classer grade was split into color grade and leaf grade. The grade is not reduced because of the presence of extraneous materials such as bark or grass. The percentages given in the graph for the crops beginning in 1993 are for the color grades, but each color grade includes all leaf grades in that color group. In the trend chart, the data for the last ten years are biased from data for the previous years because there are no reductions in color grade for extraneous matter.



\*Based on 2003 CCC Cotton Loan Premium and Discount Schedule

# MOST POPULAR VARIETIES FOR 2003

## VARIETIES BY REGION

LOCATION	VARIETY	PERCENT OF ACREAGE
<i>(SOUTHEAST)</i>		
Florence	<i>Deltapine DP 541 B/RR</i>	21
Macon	<i>Deltapine DP 555 BG/RR</i>	33
Birmingham	<i>Deltapine DP 555 BG/RR</i>	14
<i>(MIDSOUTH)</i>		
Rayville	<i>Deltapine DP 555 BG/RR</i>	31
Memphis	<i>Paymaster PM 1218 BG/RR</i>	28
Dumas	<i>Stoneville ST 4892BR</i>	26
<i>(SOUTH TEXAS)</i>		
Corpus Christi	<i>BCS FiberMax FM 832</i>	43
<i>(WEST TEXAS)</i>		
Abilene	<i>Deltapine DP 5415RR</i>	7
Lubbock	<i>Paymaster PM 2326 RR / BCS FiberMax FM 958*</i>	18
Lamesa	<i>BCS FiberMax FM 958</i>	11
<i>(CA-AZ)</i>		
Phoenix	<i>Deltapine DP 449 BG/RR</i>	29
<i>(SJV)</i>		
Visalia	<i>Phytogen PHY 72 Acala</i>	43

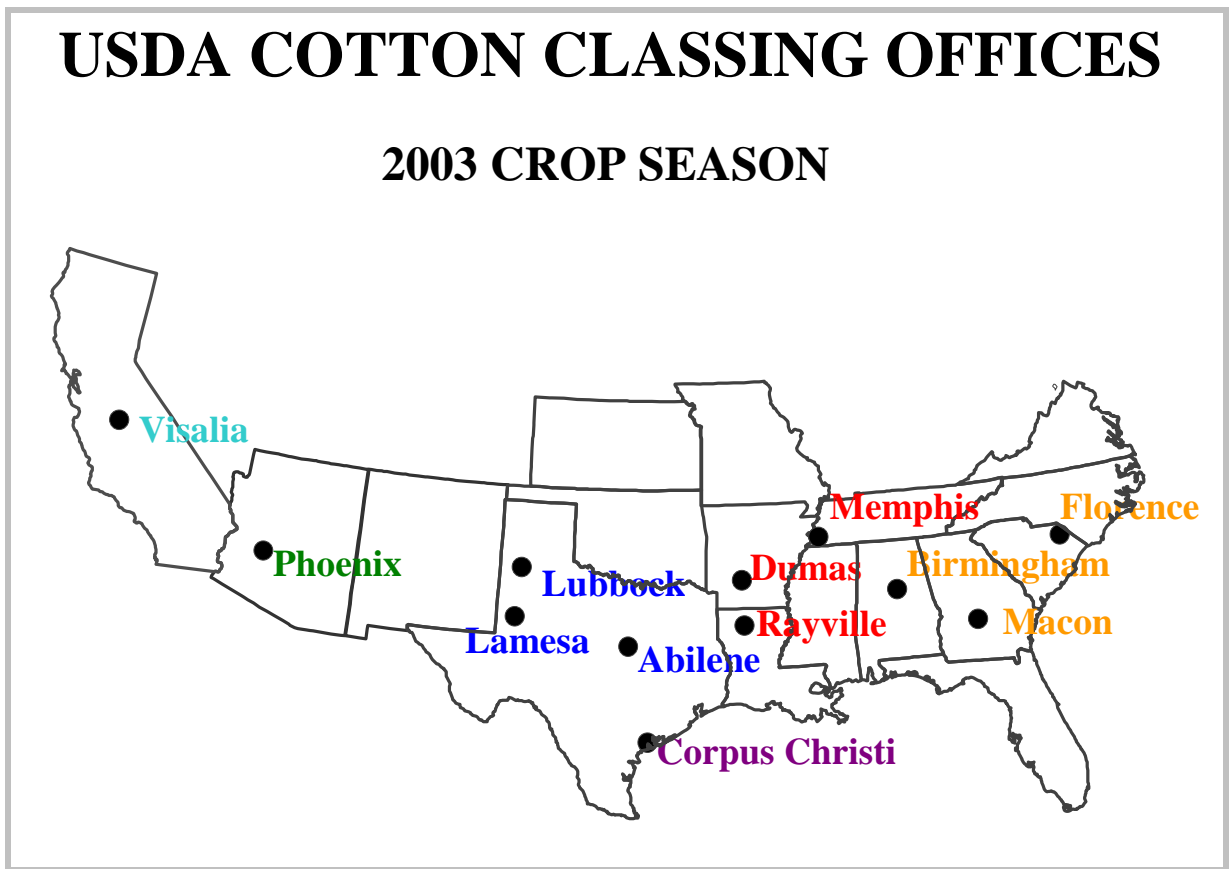
\*PM 2326 RR and FM 958 each accounted for 18% of the acres planted in the area classed by Lubbock

Source: USDA AMS – Cotton Program

Estimates of the percentage of the various varieties of cotton planted in the United States for 2003 were based on informal surveys made by the Cotton Program Classing Offices. Those surveyed included ginners, seed dealers, extension agents, and other knowledgeable sources.

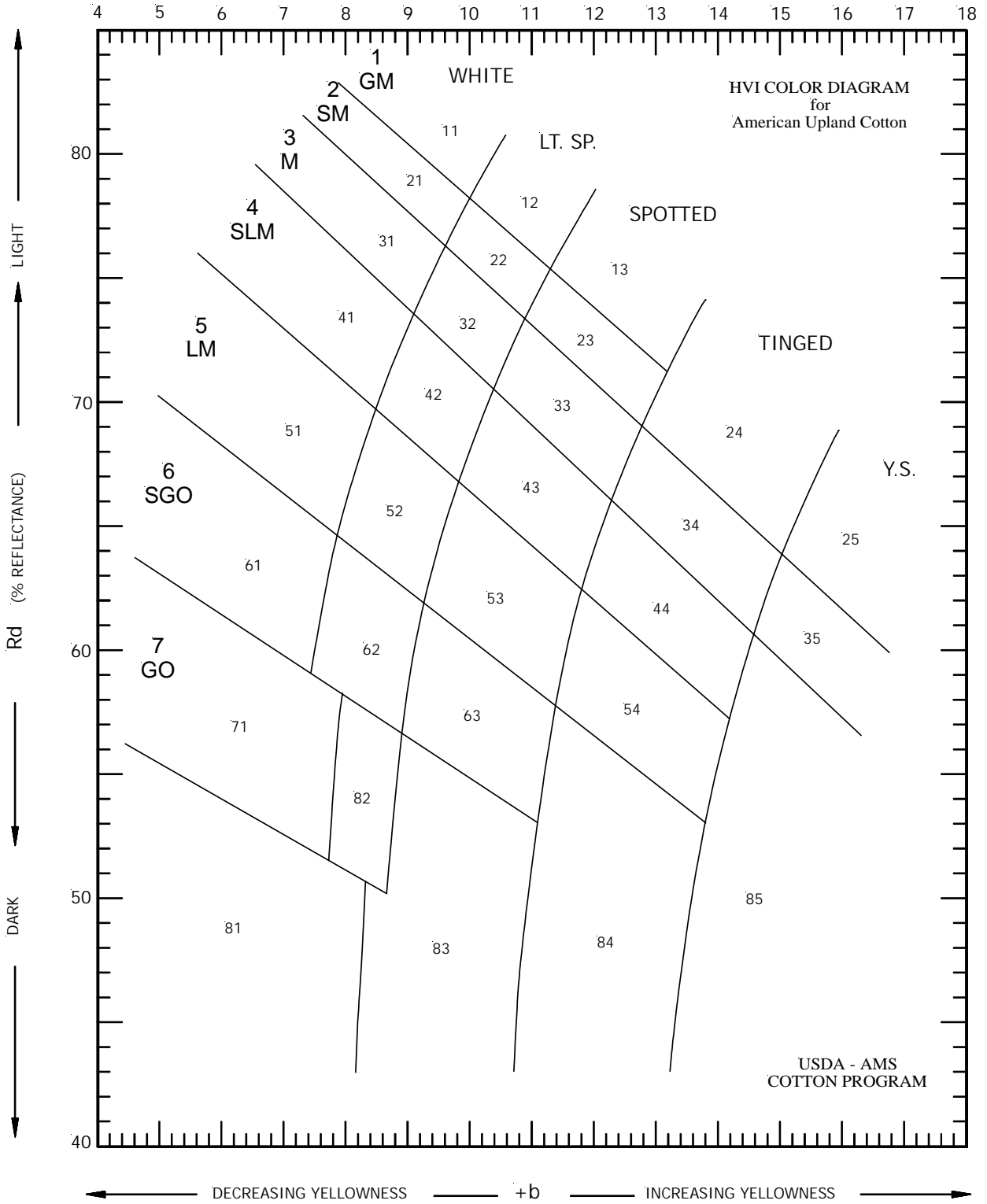
# USDA COTTON CLASSING OFFICES – 2003

There are 12 USDA classing offices located throughout the cotton production regions of the USA.



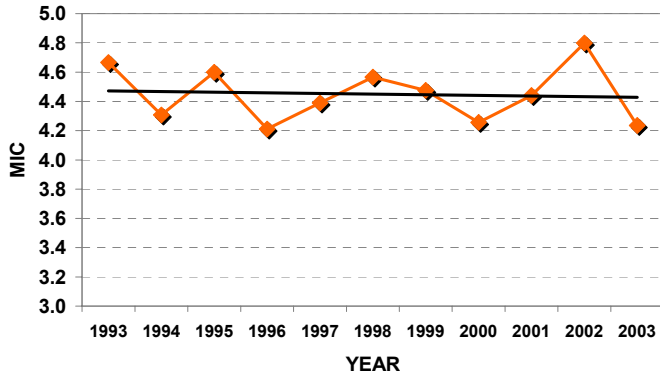
<u>Region</u>	<u>Classing Offices</u>
<b>SJV</b>	Visalia
<b>CA-AZ</b>	Phoenix
<b>WT</b>	Lamesa, Lubbock, Abilene
<b>ST</b>	Corpus Christi
<b>MS</b>	Dumas, Rayville, Memphis
<b>SE</b>	Birmingham, Macon, Florence

# HVI COLOR GRADES FOR USA UPLAND COTTON

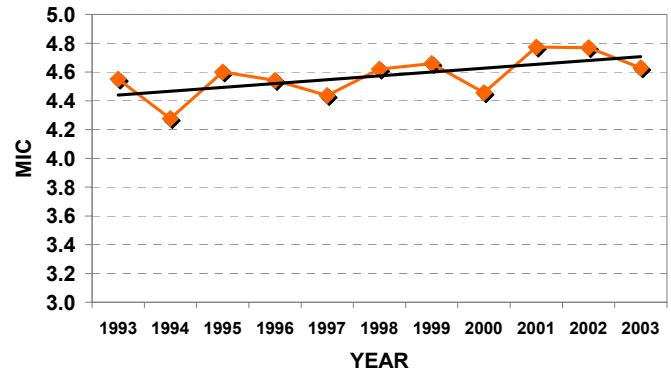


# REGIONAL TRENDS IN USA UPLAND COTTON

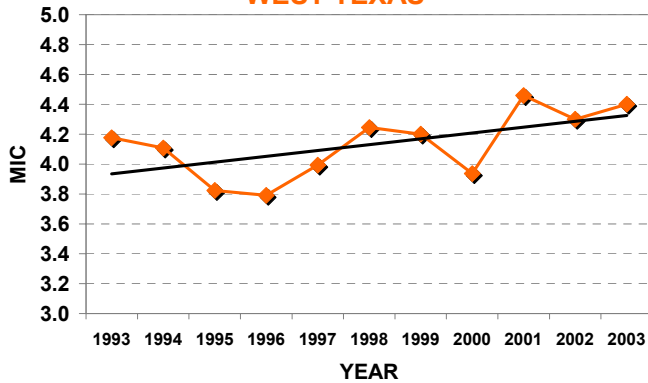
TEN YEAR MICRONAIRE TREND  
SOUTHEAST



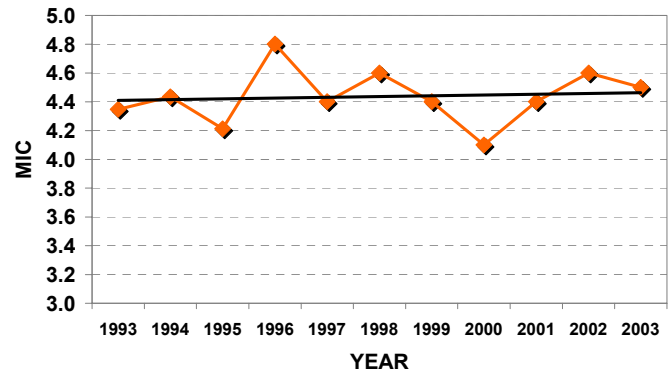
TEN YEAR MICRONAIRE TREND  
MIDSOUTH



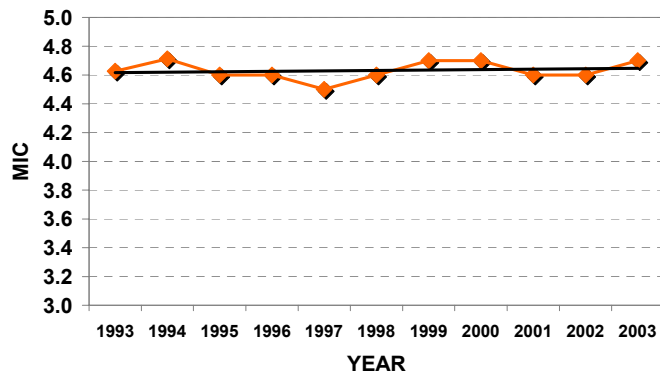
TEN YEAR MICRONAIRE TREND  
WEST TEXAS



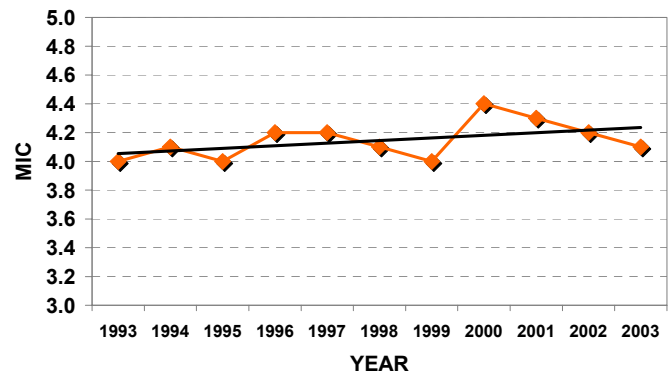
TEN YEAR MICRONAIRE TREND  
SOUTH TEXAS



TEN YEAR MICRONAIRE TREND  
California-Arizona -- "C-A"

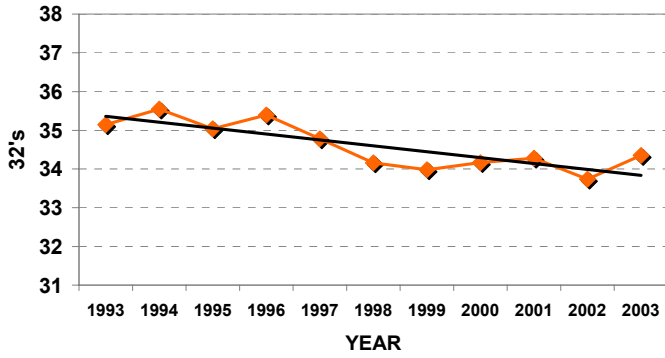


TEN YEAR MICRONAIRE TREND  
SJV

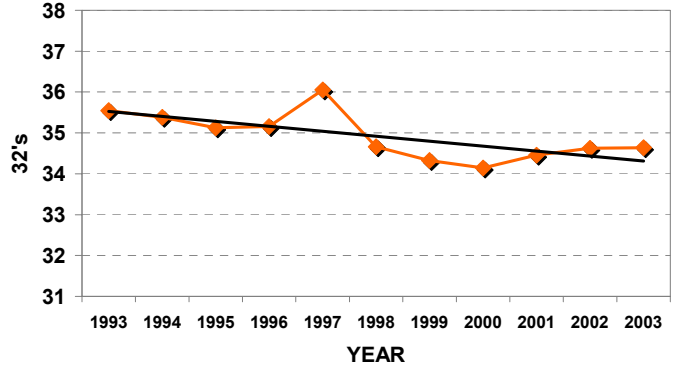


# REGIONAL TRENDS IN USA UPLAND COTTON

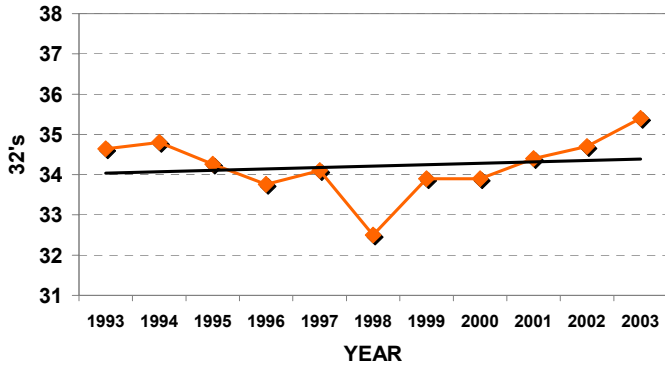
TEN YEAR STAPLE LENGTH TREND  
SOUTHEAST



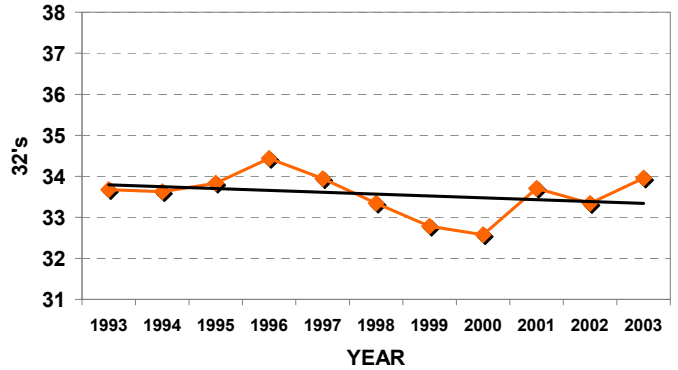
TEN YEAR STAPLE LENGTH TREND  
MIDSOUTH



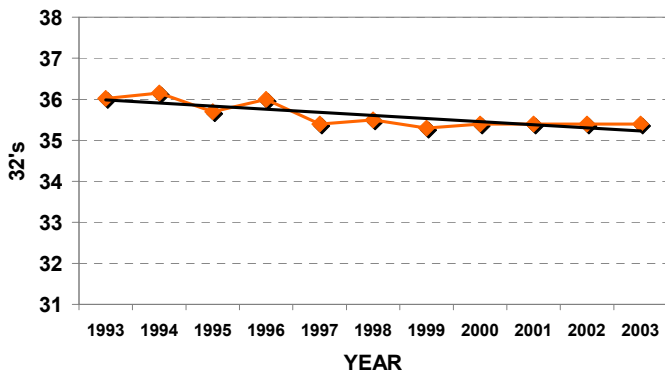
TEN YEAR STAPLE LENGTH TREND  
SOUTH TEXAS



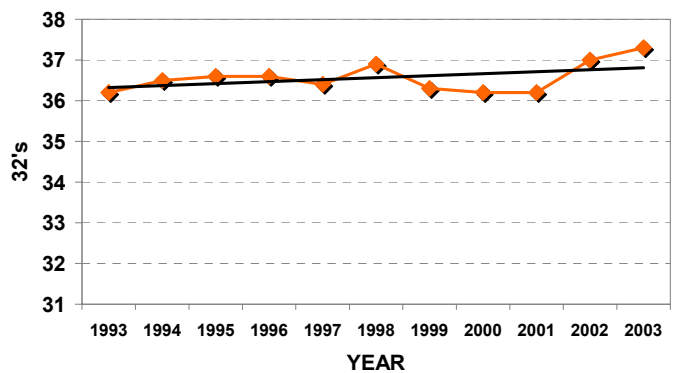
TEN YEAR STAPLE LENGTH TREND  
WEST TEXAS



TEN YEAR STAPLE LENGTH TREND  
California / Arizona "C-A"

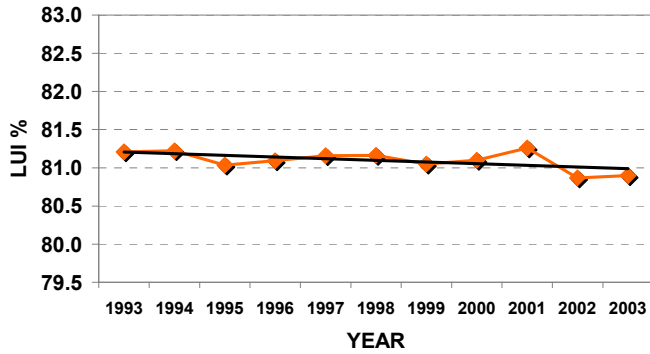


TEN YEAR STAPLE LENGTH TREND  
San Joaquin Valley "SJV"

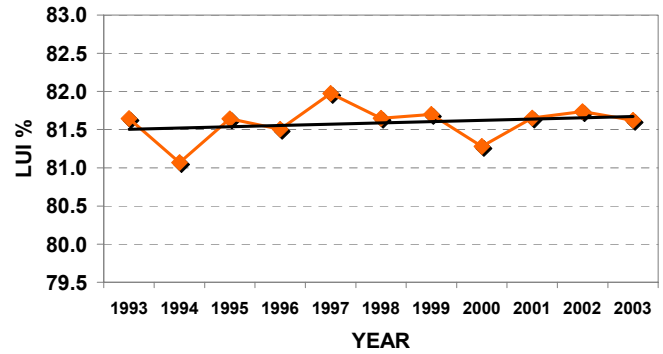


# REGIONAL TRENDS IN USA UPLAND COTTON

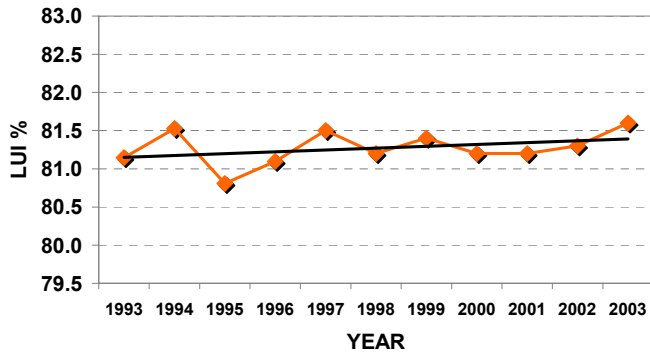
**TEN YEAR LUI TREND**  
**SOUTHEAST**



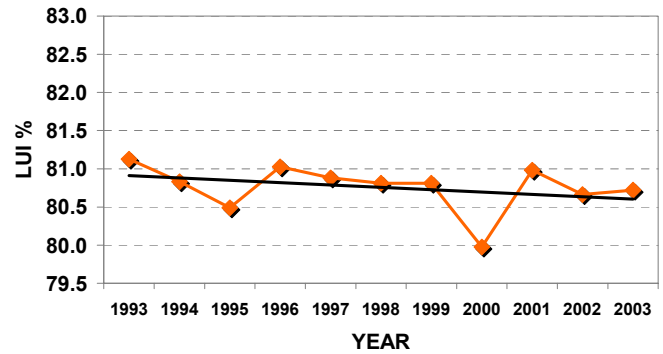
**TEN YEAR LUI TREND**  
**MIDSOUTH**



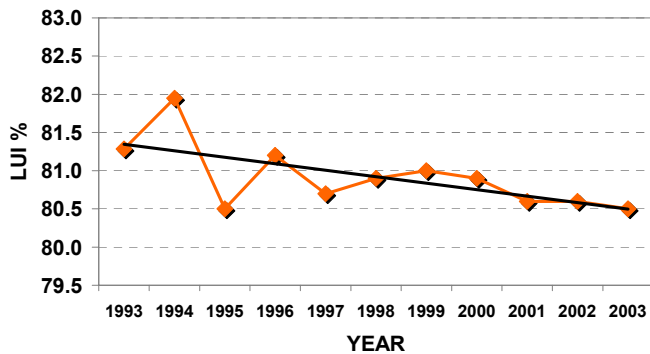
**TEN YEAR LUI TREND**  
**SOUTH TEXAS**



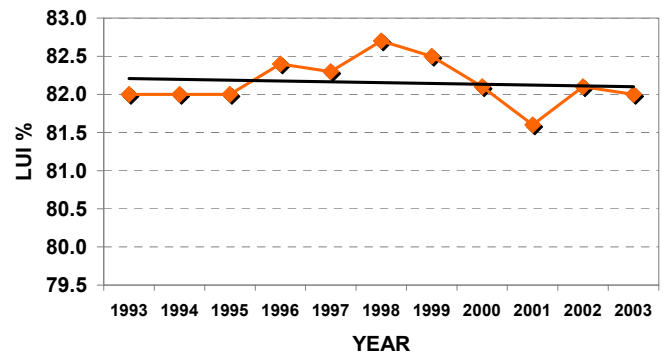
**TEN YEAR LUI TREND**  
**WEST TEXAS**



**TEN YEAR LUI TREND**  
**California-Arizona -- "C-A"**

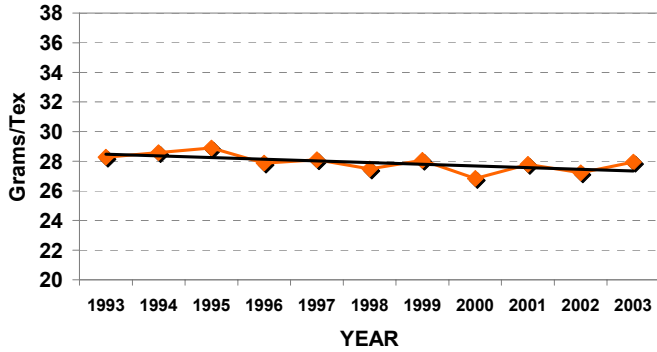


**TEN YEAR LUI TREND**  
**SJV**

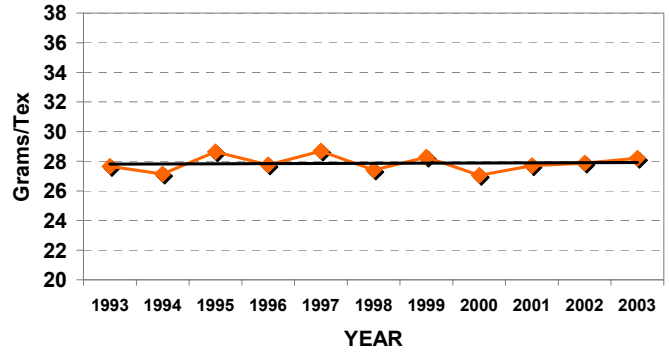


# REGIONAL TRENDS IN USA UPLAND COTTON

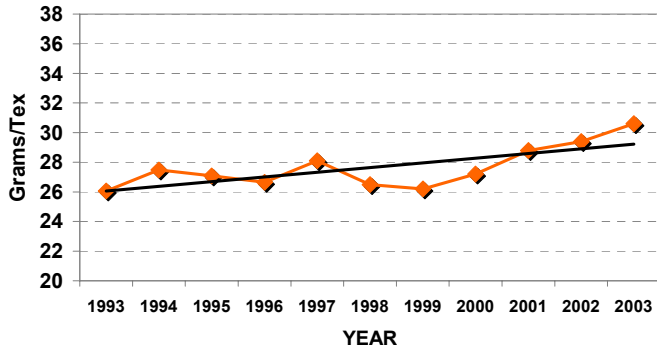
TEN YEAR STRENGTH TREND  
SOUTHEAST



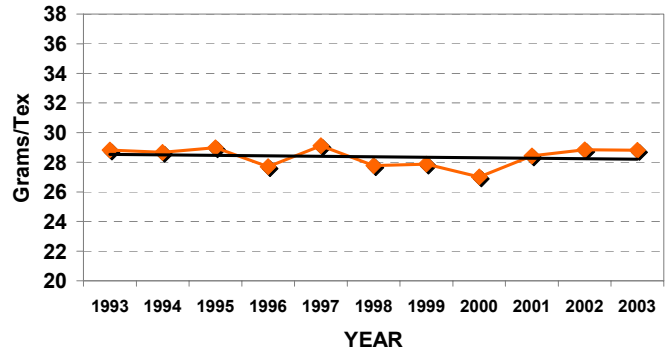
TEN YEAR STRENGTH TREND  
MIDSOUTH



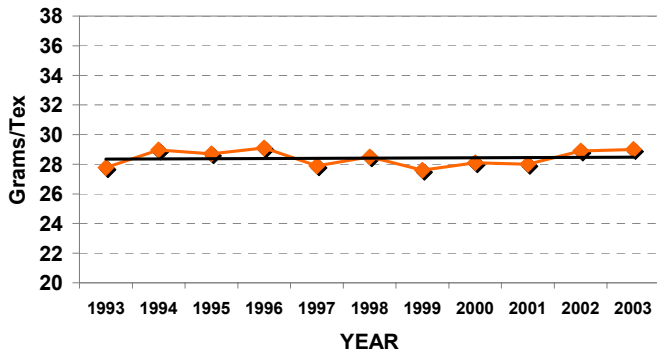
TEN YEAR STRENGTH TREND  
SOUTH TEXAS



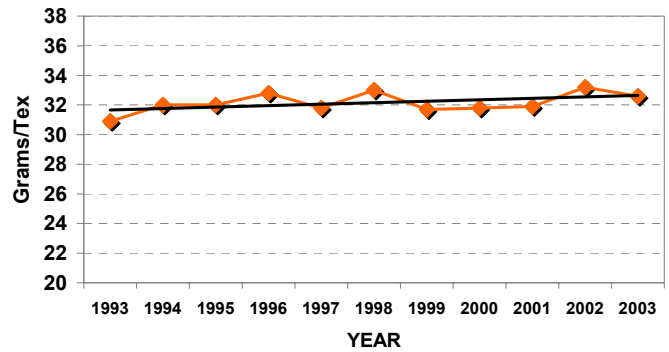
TEN YEAR STRENGTH TREND  
WEST TEXAS



TEN YEAR STRENGTH TREND  
California-Arizona -- "C-A"

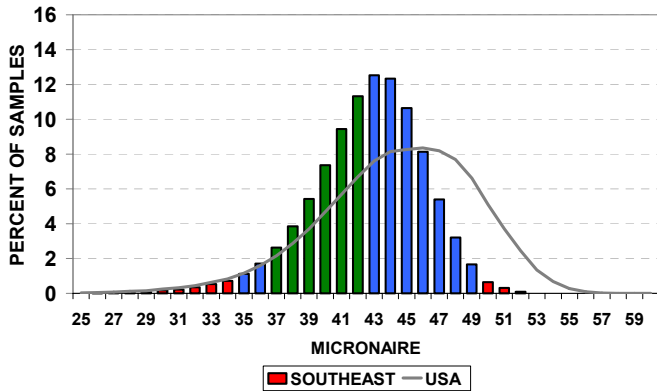


TEN YEAR STRENGTH TREND  
SJV

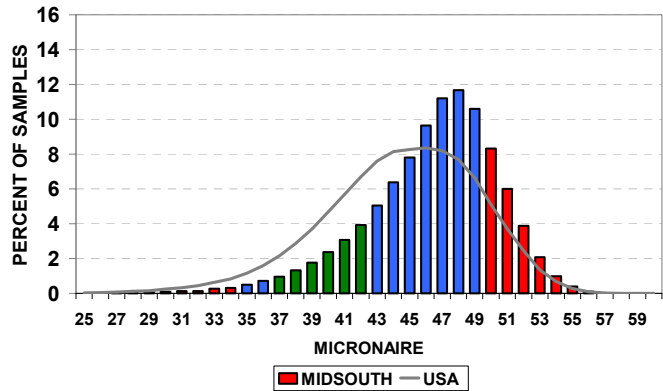


# REGIONAL DISTRIBUTIONS IN USA UPLAND COTTON

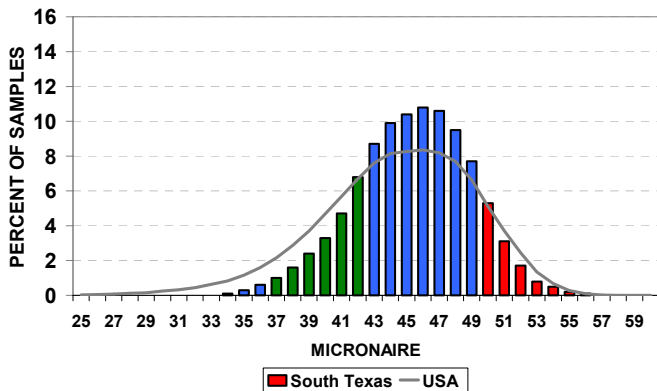
**MICRONAIRE DISTRIBUTION**  
**SOUTHEAST**



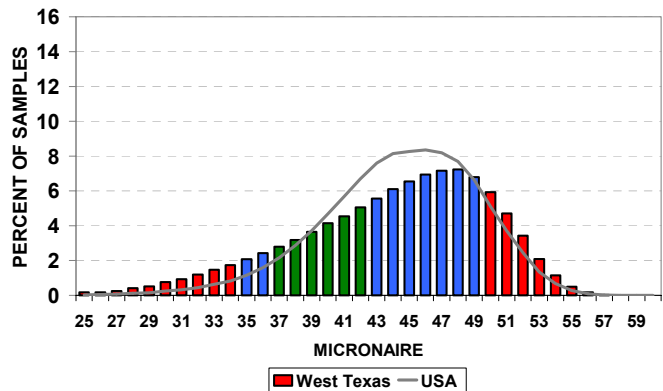
**MICRONAIRE DISTRIBUTION**  
**MIDSOUTH**



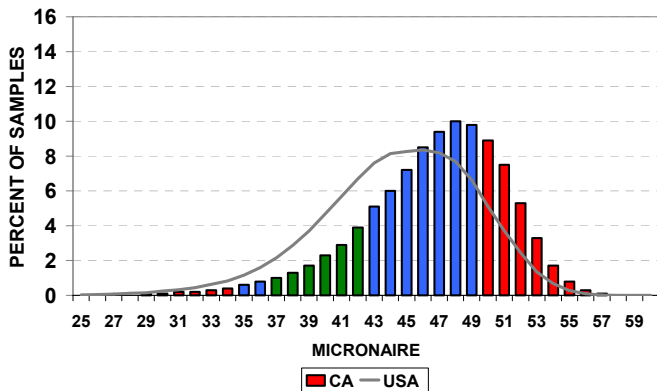
**MICRONAIRE DISTRIBUTION**  
**SOUTH TEXAS**



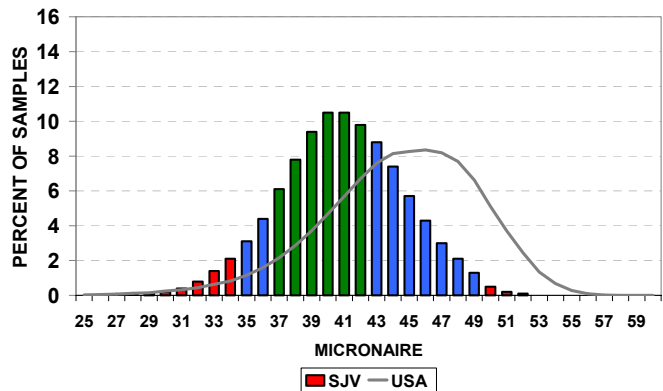
**MICRONAIRE DISTRIBUTION**  
**WEST TEXAS**



**MICRONAIRE DISTRIBUTION**  
**California-Arizona "C-A"**



**MICRONAIRE DISTRIBUTION**  
**SAN JOAQUIN VALLEY "SJV"**

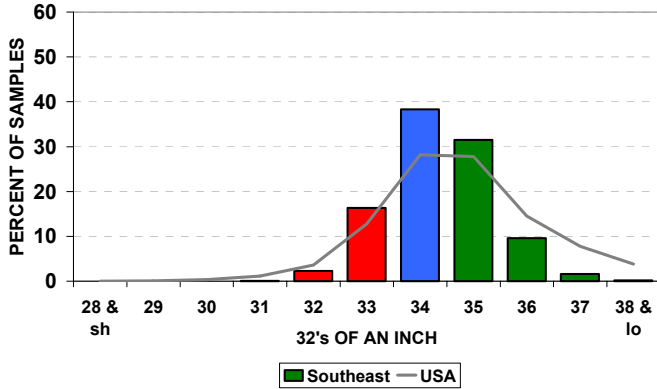


■ DISCOUNT\* (41-4)    ■ BASE\* (41-4)    ■ PREMIUM\* (41-4)

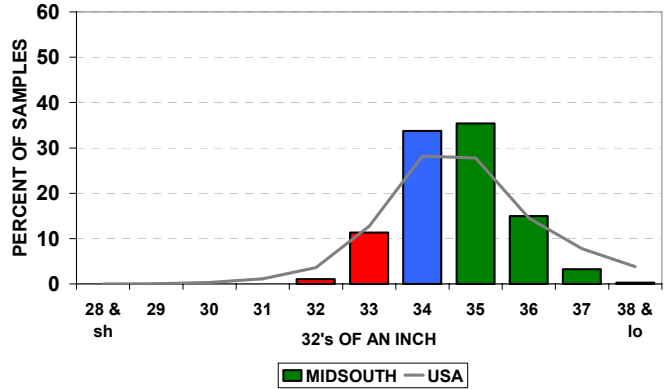
\*Based on 2003 CCC Cotton Loan Premium and Discount Schedule

# REGIONAL DISTRIBUTIONS IN USA UPLAND COTTON

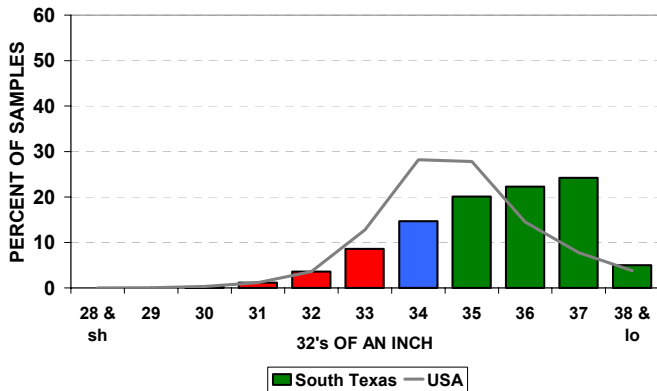
**STAPLE LENGTH DISTRIBUTION  
SOUTHEAST**



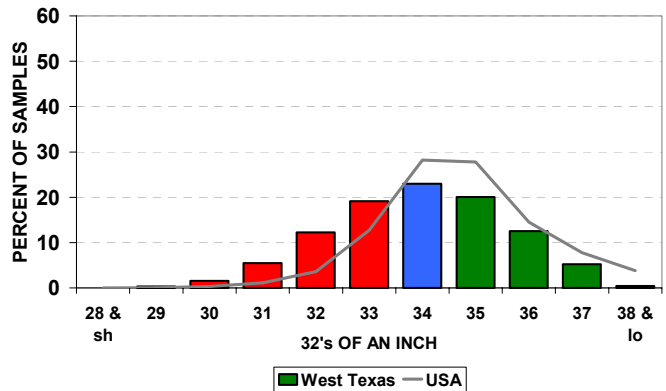
**STAPLE LENGTH DISTRIBUTION  
MIDSOUTH**



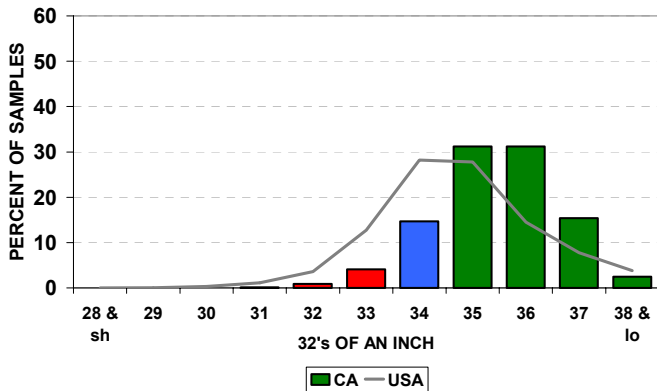
**STAPLE LENGTH DISTRIBUTION  
SOUTH TEXAS**



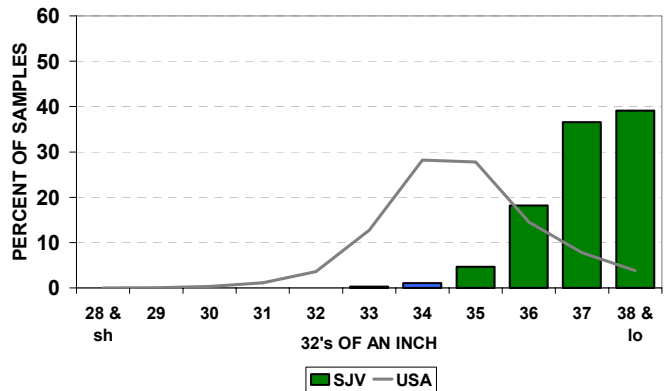
**STAPLE LENGTH DISTRIBUTION  
WEST TEXAS**



**STAPLE LENGTH DISTRIBUTION  
CALIFORNIA/ARIZONA "C-A"**



**STAPLE LENGTH DISTRIBUTION  
SAN JOAQUIN VALLEY "SJV"**

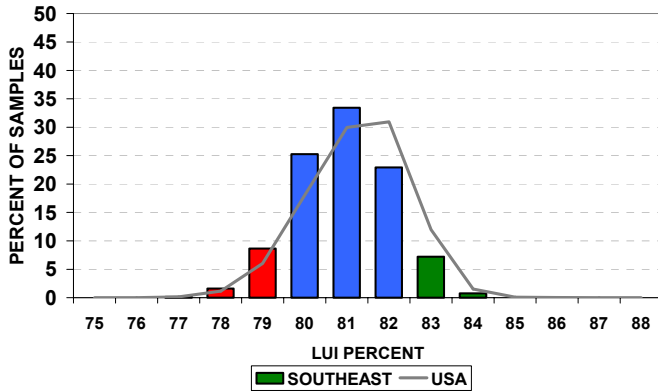


DISCOUNT\*
  BASE\*
  PREMIUM\*

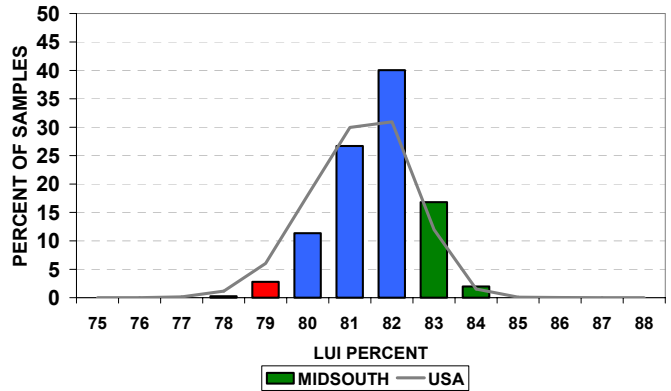
\*Based on 2003 CCC Cotton Loan Premium and Discount Schedule

# REGIONAL DISTRIBUTIONS IN USA UPLAND COTTON

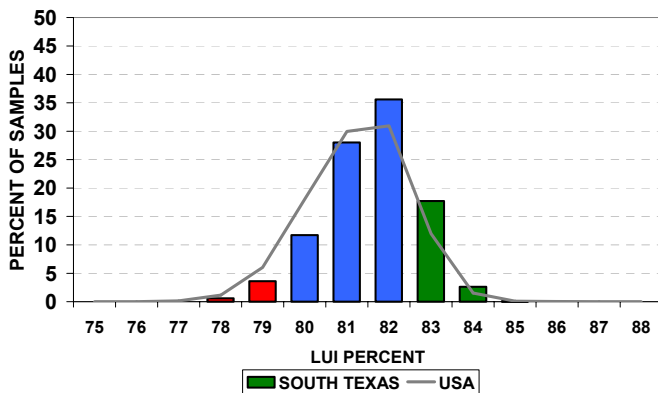
**LENGTH UNIFORMITY DISTRIBUTION  
SOUTHEAST**



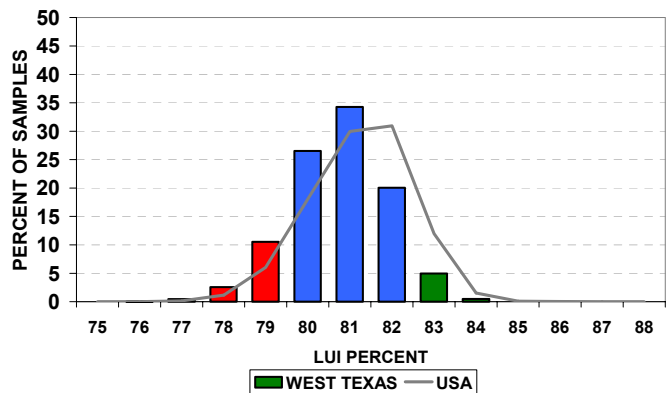
**LENGTH UNIFORMITY DISTRIBUTION  
MIDSOUTH**



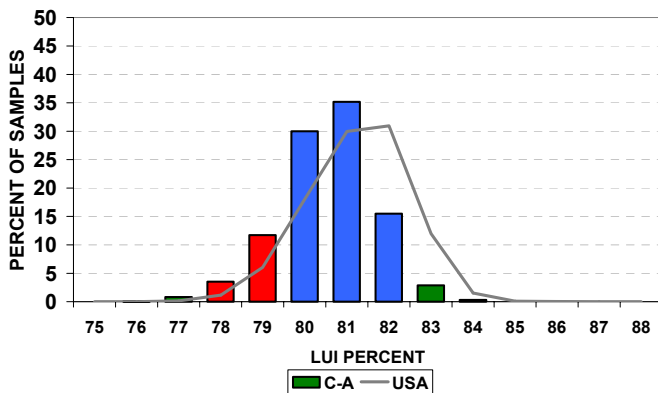
**LENGTH UNIFORMITY DISTRIBUTION  
SOUTH TEXAS**



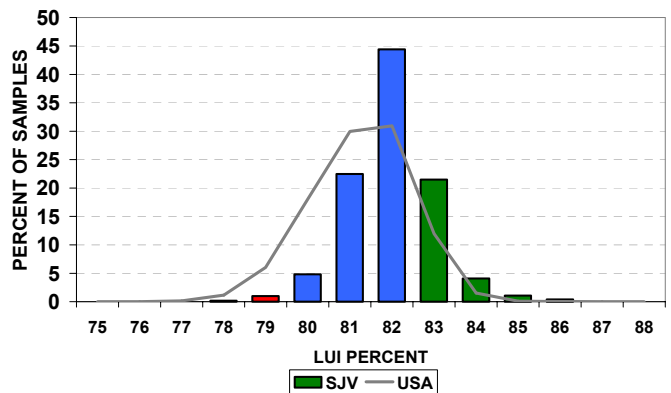
**LENGTH UNIFORMITY DISTRIBUTION  
WEST TEXAS**



**LENGTH UNIFORMITY DISTRIBUTION  
CALIFORNIA-ARIZONA "C-A"**



**LENGTH UNIFORMITY DISTRIBUTION  
SAN JOAQUIN VALLEY "SJV"**

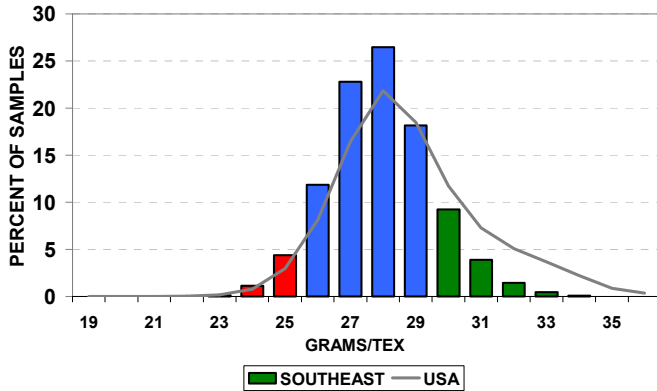


DISCOUNT\*
  BASE\*
  PREMIUM\*

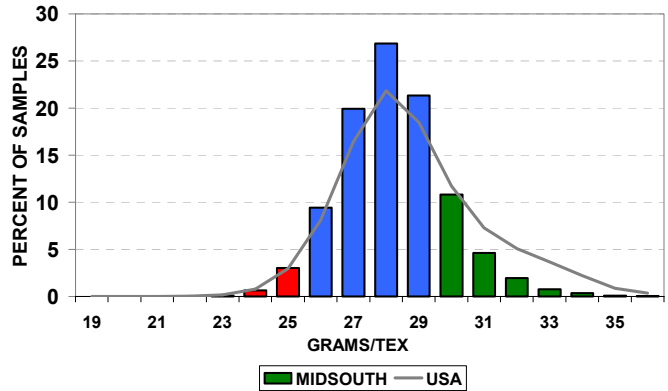
\*Based on 2003 CCC Cotton Loan Premium and Discount Schedule

# REGIONAL DISTRIBUTIONS IN USA UPLAND COTTON

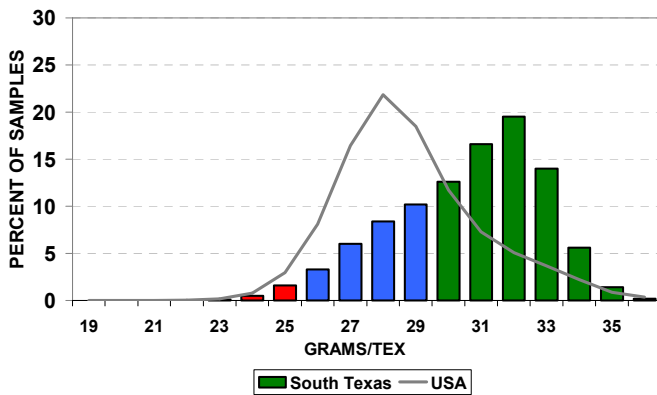
**STRENGTH DISTRIBUTION  
SOUTHEAST**



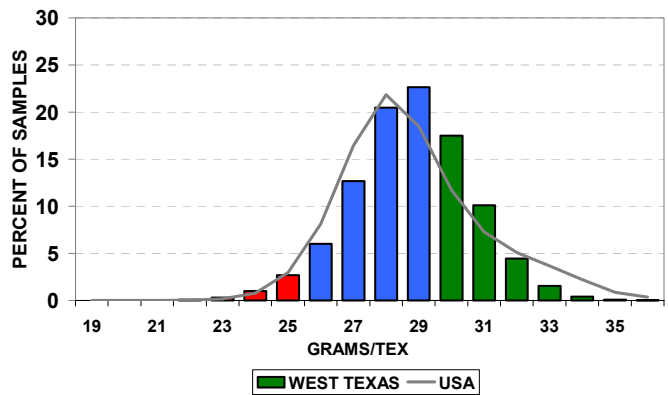
**STRENGTH DISTRIBUTION  
MIDSOUTH**



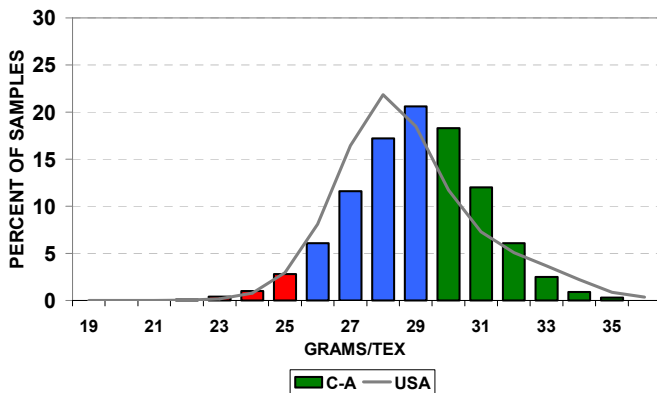
**STRENGTH DISTRIBUTION  
SOUTH TEXAS**



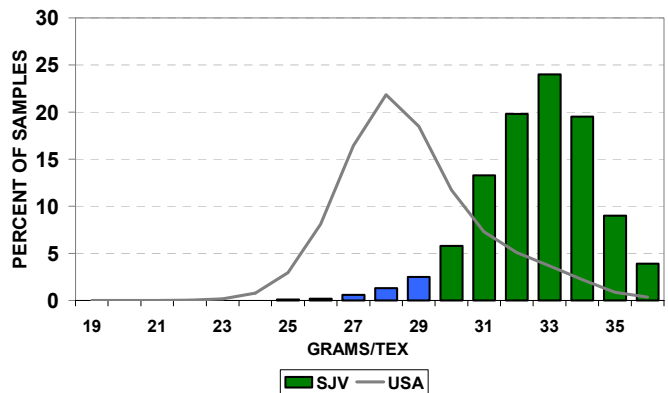
**STRENGTH DISTRIBUTION  
WEST TEXAS**



**STRENGTH DISTRIBUTION  
CALIFORNIA-ARIZONA "C-A"**



**STRENGTH DISTRIBUTION  
SAN JOAQUIN VALLEY "SJV"**



■ DISCOUNT\*

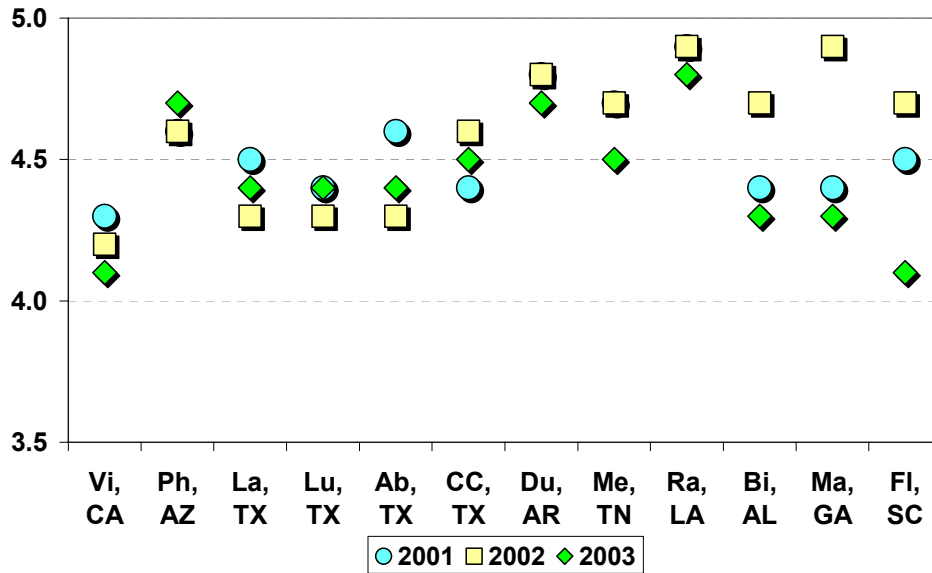
■ BASE\*

■ PREMIUM\*

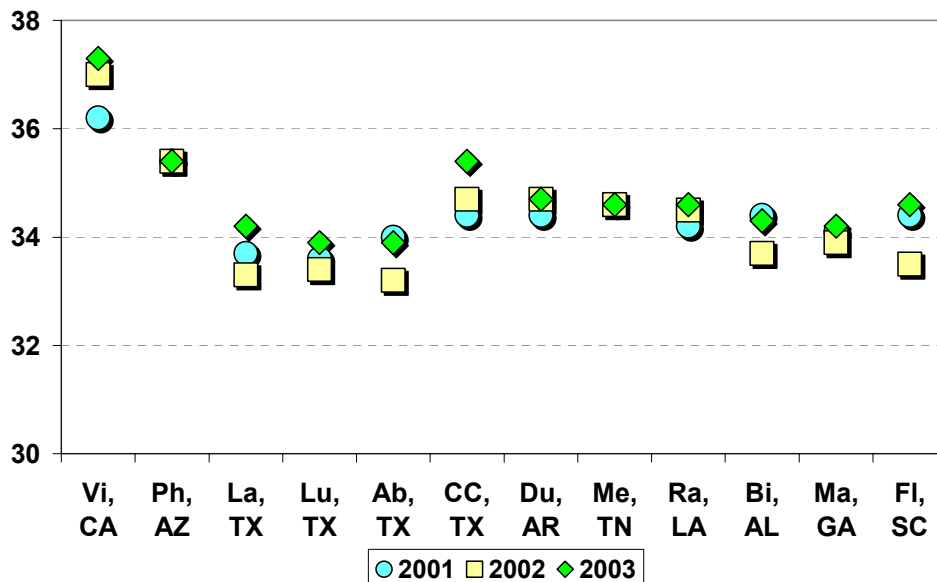
\*Based on 2003 CCC Cotton Loan Premium and Discount Schedule

# AVERAGE FIBER PROPERTIES BY CLASSING OFFICE

## AVERAGE MICRONAIRE USA UPLAND - FINAL 2003-4

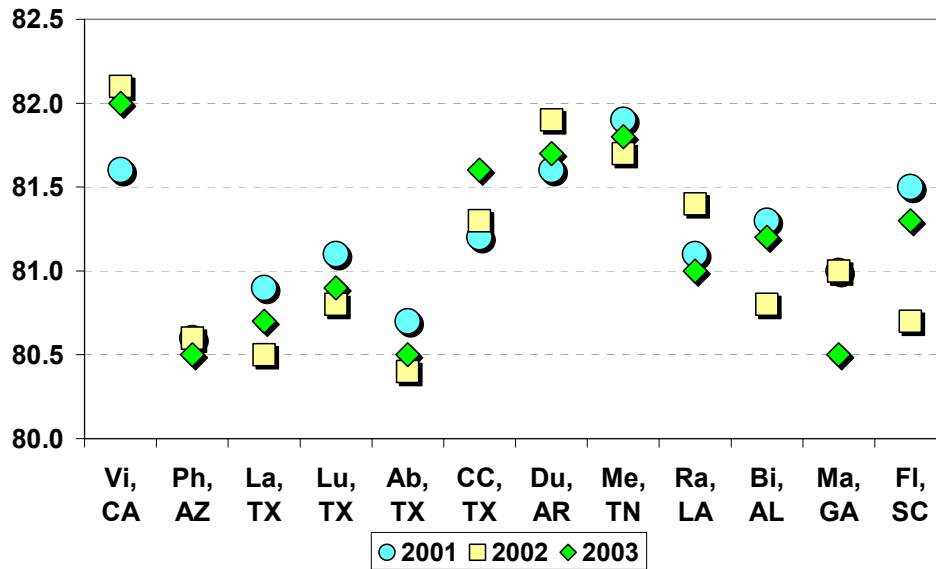


## AVERAGE STAPLE LENGTH USA UPLAND - FINAL 2003-4



# AVERAGE FIBER PROPERTIES BY CLASSING OFFICE

## AVERAGE LENGTH UNIFORMITY USA UPLAND - FINAL 2003-4



## AVERAGE STRENGTH USA UPLAND - FINAL 2003-4

