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# Cotton and Wool

## Situation and Outlook Report

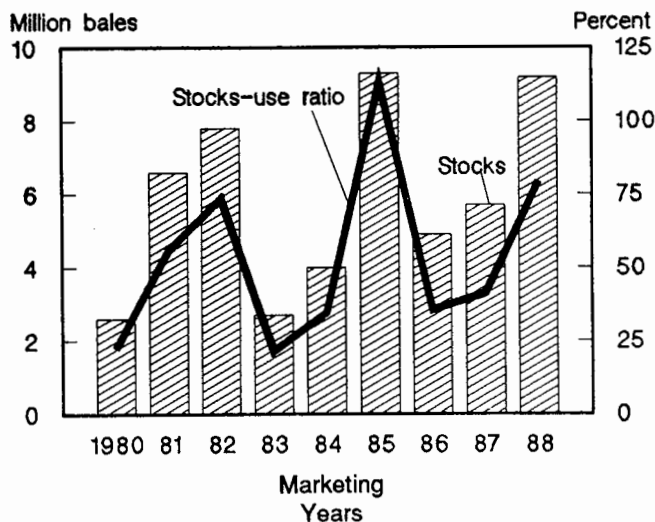
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**U.S. Cotton Stocks and Stocks-Use Ratio  
To Rise Sharply**



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## Summary

The 1988 U.S. cotton crop is estimated at 15.4 million bales. Upland production is estimated at 15.1 million bales, and extra-long staple at a record 338,200 bales. Harvested area, at 11.9 million acres, was the largest since the 1981/82 crop year, reflecting the smaller 1988 acreage reduction program. Yields likely averaged 623 pounds per harvested acre, an 83-pound drop from 1987's record. Cotton ginned prior to February 1 totaled 15.3 million bales. Revised acreage, yield, and production estimates will be released on May 11 in the final 1988 crop report.

U.S. mills consumed 7.6 million bales of cotton in 1987/88, more than at any time in the past 15 years. This season, mill consumption is expected to fall to 6.9 million bales. Reduced denim demand and consumer preference for more fine-count yarn products are lowering mill use. Mill consumption for August through January averaged near 7.1 million bales on a seasonally adjusted annual rate. Cotton's share of fibers used on the cotton system has represented almost two-thirds of total fibers this season.

Although cotton textile imports remain very high, foreign shipments have declined. U.S. imports of foreign cotton textiles in 1988 totaled 4.4 million bale-equivalents, 9 percent below 1987. In addition, U.S. cotton textile exports increased over 10 percent above a year earlier (and 20 percent above 1986). The deficit in textile trade probably was near 3.7 million bale-equivalents for calendar 1988, or about one-third of total domestic consumption. Even so, the cotton textile trade deficit dropped over 500,000 bale-equivalents for 1988.

U.S. cotton exports for 1988/89 are forecast at 5.2 million bales, 21 percent below last season. Aggressive pricing by major foreign exporters and heavy movement of U.S. cotton under loan have been largely responsible for the decline. Although the Secretary of Agriculture made several changes in the upland cotton program to make U.S. cotton more competitive in world markets, U.S. price quotations still remain above competitors'. In January, Memphis Territory-A type cotton averaged 68 cents per pound c.i.f. Northern Europe, while the lowest price quotations for foreign growths were 61 cents. On the Northern European market, U.S. pricequotations have been among the lowest five for only 21 days since February 1988.

U.S. cotton prices moved lower last season, reflecting larger U.S. and foreign production, stable consumption, and adequate stocks. The adjusted world price (U.S. equivalent of world prices) dropped below the loan rate during July and has remained below the loan level during the first 6 months of the 1988/89 marketing year. The adjusted world price (AWP) continued to fall through the end of August. Since then, the AWP has increased to near 51 cents per pound, up more than 9 cents from the early-season low, partly because of tightening foreign supplies.

The calendar 1988 national average price was 56.5 cents per pound. Upland cotton producers who participated in the 1988 acreage reduction program received a deficiency payment rate of 19.4 cents (the difference between the established target price and the calendar year average price). Some producers received advance payments of 6.4 cents per pound, leaving a 13-cent balance that was paid in cash. Producers who did not request advance payments received the full amount. Final deficiency payments of \$725 million for 1988 upland cotton were made during February.

World cotton ending stocks in 1988/89 are projected at 33 million bales, up slightly from 1987/88 but well below the 36-million-bale average of the preceding 5 years. World stocks-to-use ratios are estimated at 40 percent, since 1988/89 world consumption is estimated to be down about 700,000 bales from 1987/88 to 82.6 million bales.

World production in 1988/89, estimated at 83.7 million bales, will be the largest since the 1984/85 crop. Foreign production is projected up about 4 percent from 1987/88, while U.S. production is estimated 5 percent ahead of last season.

U.S. wool consumption in 1988 was 144.1 million pounds, clean, slightly more than 6 percent greater than the previous 5-year average. Raw wool use in woolen mills during 1988 was 10 percent less than the 1983-87 average. In contrast, worsted raw wool use, 72.7 million pounds, was more than 17 percent above the previous 5 years' average. Carpet mills used 15.8 million pounds of wool in 1988, up 31 percent from the 1983-87 average.

## Textiles and the Economy

In 1988 the United States recorded a nominal merchandise trade deficit of \$137.3 billion on imports of \$459.5 billion and exports of \$322.2 billion. The annual figures for 1986 and 1987 were \$155.1 and \$170.3 billion, respectively. The recent data represent the first improvement in the deficit since 1980 and reflect strong growth in exports which offset continued growth in imports. Exports in 1988 increased about 26.8 percent, while imports rose a more modest 8.3 percent.

The U.S. textile trade picture also improved last year, as measured by volume and value of imports. In square yards equivalent, U.S. imports of textiles were 12.8, 13.1, and 12.4 billion in 1986, 1987, and 1988, respectively. In 1988 versus 1987, imports of yarns, fabrics, and apparel were down 14.4, 13.3, and 1.4 percent by volume, respectively. By fiber type, imports over the same period of cotton, wool, and manmade fiber were down 9.9, 7.3, and 1.8 percent by volume, respectively. In 1988, imports by value were down .4 percent from the previous year. By value and fiber type, 1988 imports of cotton textiles (\$9.6 billion), wool textiles (\$2.4 billion), and manmade fiber textiles (\$10.1 billion) were down .3 percent, up .4 percent, and up 2.9 percent, respectively, from 1987. The largest decline in 1988 was in imports of vegetable fibers (\$1.3 billion), down 22.2 percent from 1987.

Exports of cotton, wool, and manmade fiber apparel products by value were up 44.9, 70.9, and 30.9 percent, respectively, over 1987. Overall, apparel exports were up 39 percent by value in 1988. The value of U.S. exports of textiles, not including apparel, were up 25.9 percent.

Real disposable personal income last year increased 3.8 percent from the previous year—a sizable gain over the 1.7-percent rise in 1987. At the end of 1988, real annual per capita disposable personal income was about \$11,500 (1982 dollars), compared with \$9,750 in 1982. During 1988, real personal consumption expenditures increased 2.8 percent overall, with most of the increase in durable goods purchases (up 4.5 percent) versus nondurable goods (up 1 percent).

Continuing strong demand for consumer goods and the falling value of the U.S. dollar versus foreign currencies have helped push prices up. In 1988, import prices rose 6.9 percent, after increasing 8.9 and 8.2 percent in 1987 and 1986, respectively. The more modest increase last year was due perhaps to a less rapid depreciation in the U.S. dollar over the year.

Rising import prices have also buoyed the trade deficit. As a result of the persistent deficit and strong consumer demand, recent monetary policy has favored higher interest rates.

U.S. industry capacity utilization in January 1989 was 84.4 percent, unchanged from the previous month and 1.9 percentage points ahead of a year earlier. The January rate was last exceeded in October 1979. In 1988, total industry capacity utilization averaged 83.3 percent. The average rates for durable and nondurable manufacturing were 81.1 and 86.1 percent, respectively.

Capacity utilization in the textile mill products sector was 88.6 percent in December and averaged 89.7 percent for the 1988 calendar year. Unlike the rates for durable and nondurable manufacturing, and contrary to the patterns for most industrial sectors in general (which showed a steady quarterly increase in capacity utilization), the quarterly pattern for textile mill products decreased during 1988. The rates were 91.1, 89.5, 89.4, and 88.9 percent in the first through fourth quarters, respectively. While capacity in the textile mill products sector increased in proportion to that for all nondurable manufacturing, rising 4.1 percent, the level of output was essentially unchanged during 1988, compared with a 5-percent increase for nondurable manufacturing.

Some analysts would view favorably a slowdown in the rate of U.S. industry capacity utilization. The latest monthly data do not yet indicate a general downturn, as most of the decline is in durable goods—automobiles in particular.

Industrial production rose .3 percent in January, following a .5-percent rise in December. The index of textile mill industrial output stood at 117.2 (1977=100) in December 1988. The index was at 118.2 in December 1987, and averaged 116.3 for calendar 1988. During the course of the year, output of fabrics tended to decline, while output of knitted goods increased. For instance, for December of 1987 and 1988, respectively, the index for fabrics was at 107.6 and 102.2, and the index for knitted goods was at 114.1 and 123.7. Among fabrics considered by fiber type, the index for cotton fabric fell from 128.5 in December 1987 to 114.1 in November 1988, the latest month for which data are available. Output of apparel products has been stable during 1988. The index for apparel products in November 1988 had risen to 110.1, from 107.8 in December 1987.

During 1988, civilian labor force unemployment continued to decline, maintaining the trend begun in late 1982. In December, the rate was 5.3 percent, its lowest since mid-1974. The rate seems to have stabilized at about 5.3-5.4 percent recently, indicating that any further improvement will be hard won. Unemployment in the apparel products sector averaged 7.8 percent in 1988, down from the 9.6-percent rate of 1987. Unemployment in the textile mill products sector averaged 5.4 percent in 1988, down from 5.7.

# U.S. Cotton Situation and Outlook

## Upland Cotton Situation

### Lower Yields But Large Crop

The 1988 upland cotton crop is estimated at 15.1 million bales, 4 percent above 1987 and almost 500,000 bales above the August 1 estimate. Upland cotton ginned prior to February 1 totaled 15.0 million bales. Revised acreage, yield, and production estimates will be released on May 11 in the final 1988 crop report.

Upland production was the largest since 1981, when 15.6 million bales were produced. Total area for harvest is estimated at 11.7 million acres, up 18 percent from 1987 and 2 percent above the August 1 estimate. Upland yields likely averaged 620 pounds per harvested acre, 82 pounds below the previous season's record 702.

In the Southwest, upland production likely was 5.5 million bales, up 10 percent from the preceding year and 11 percent above the August 1 projection. Excellent weather in the late fall allowed harvesting of remaining acreage with good yields and good harvest conditions (table A). Upland production in the Delta States probably totaled 4.7 million bales, 3 percent above the preceding year and 4 percent above the August 1 forecast. A decrease in Mississippi production was offset by an increase in Missouri and Tennessee.

The Western States likely harvested 3.8 million bales, down 3 percent from the previous year and 4 percent below the August 1 estimate. Significantly lower yields account for the decline. The Southeastern States probably harvested 1.1 million bales, up 9 percent from the preceding year.

### Lower Mill Use This Season

During the 1987/88 marketing year, U.S. mills used more upland cotton than at any time in the last 15 years. This season, mill consumption is expected to fall to 6.8 million bales, compared with 7.6 million a year ago. Larger textile inventories, reduced demand for denim, and consumers' preference for more fine-count yarns and products are contributing to declining mill use.

Upland consumption on a seasonally adjusted annual rate for August through January averaged 6.9 million bales. Annualized consumption rates dropped between August and November (figure 1). However, the annual rate for January, 7.4 million bales, was almost 400,000 above the previous month. Cotton's share of fibers used on the cotton system has represented almost two-thirds of total fibers this season.

Lower cotton prices relative to manmade fibers may result in some substitution of cotton in blends later this marketing year. During January, polyester staple prices, on a raw fiber equivalent basis, rose to 84 cents per pound, while base-quality cotton delivered to Group B mills averaged 71 cents. Although rayon prices fell slightly during January, the cotton-rayon price spread exceeded 30 cents per pound (figure 2).

### Textile Imports Fall

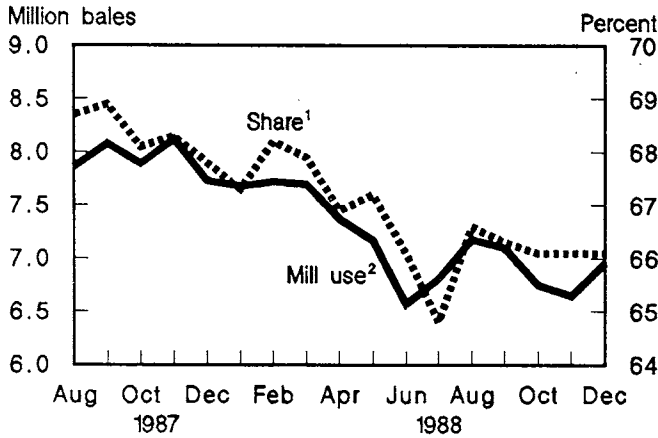
Although cotton textile imports remain very high, foreign shipments have declined. U.S. imports of foreign cotton textiles in 1988 totaled 4.4 million bale-equivalents, 9 percent below the same period in 1987. In addition, U.S. cotton textile exports increased over 10 percent above year-earlier levels (and 20 percent above 1986 shipments).

Table A--Estimated 1988 and actual 1987 upland cotton acreage, yield, and production 1/

Region	Planted	Harvested	Yield	Production
	---1,000 acres---		Lbs./acre	1,000 bales
Southeast 2/				
1987	832	823	571	979
1988	1,032	968	527	1,063
Delta 3/				
1987	2,810	2,784	791	4,587
1988	3,440	3,282	692	4,730
Southwest 4/				
1987	5,121	4,801	498	4,982
1988	6,061	5,701	462	5,491
West 5/				
1987	1,506	1,491	1,264	3,927
1988	1,777	1,753	1,047	3,823
Total				
1987	10,269	9,899	702	14,475
1988	12,310	11,704	620	15,107

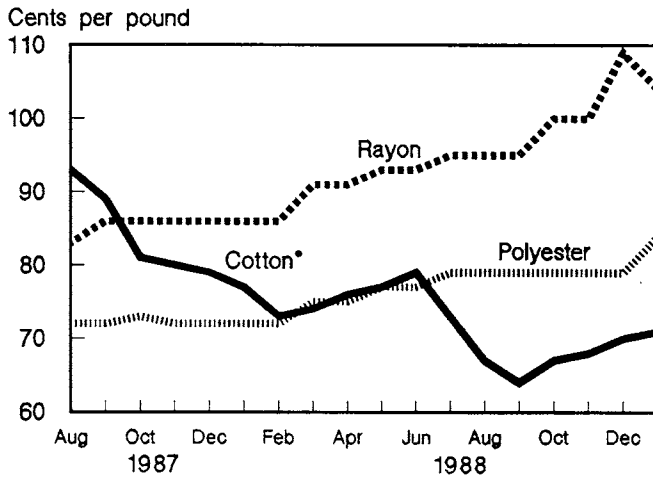
1/ Based on January Crop Production. 2/ Alabama, Florida, Georgia, North Carolina, South Carolina, and Virginia. 3/ Arkansas, Louisiana, Mississippi, Missouri, and Tennessee. 4/ Kansas, Oklahoma, and Texas. 5/ Arizona, California, and New Mexico.

Figure 1  
**Upland Mill Use and Cotton's Share Stabilize**



1/ Cotton's share of total fibers used on the cotton system.  
 2/ Seasonally adjusted annual rate.

Figure 2  
**Manmade Fiber Prices Continue High**



\* Raw fiber equivalent.

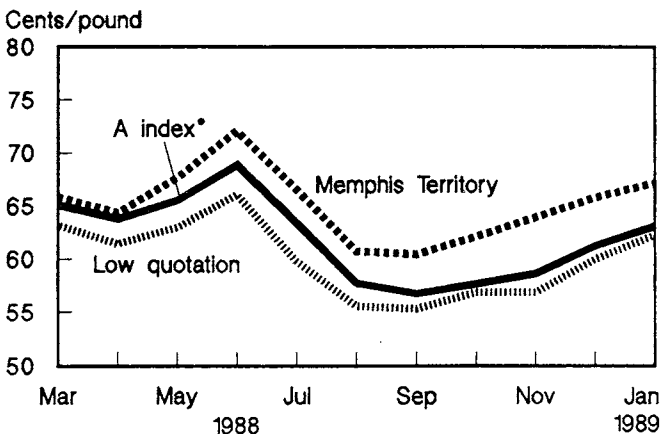
The deficit in textile trade likely was near 3.7 million bale-equivalents for calendar 1988, or about one-third of total domestic consumption. Even so, the cotton textile trade deficit dropped over 500,000 bale-equivalents in 1988.

**Upland Cotton Exports Drop**

Total 1988/89 exports of upland cotton are forecast at 4.9 million bales, 22 percent below last season. Aggressive pricing by major foreign exporters has been largely responsible for the decline. Although the Secretary of Agriculture made several changes in the upland cotton program to make U.S. cotton more competitive in world markets, U.S. price quotations still remain above competitors'. U.S. prices for 1988-crop cotton delivered on the Northern European market rose 5-7 cents per pound above foreign prices last summer. In January, Memphis Territory-A type cotton averaged 68 cents per pound c.i.f. Northern Europe, while the lowest price quotations for foreign growths were 61 cents (figure 3). Since 1988-crop price quotations have been reported, Memphis Territory cotton has been included in the A index for only 8 days last May and 10 days in July. Similarly, for coarse-count cottons, Orleans/Texas price quotations ranged 5-7 cents per pound above Pakistani quotes last spring and early summer. However, since September the price difference has narrowed to 2-3 cents per pound (figure 4).

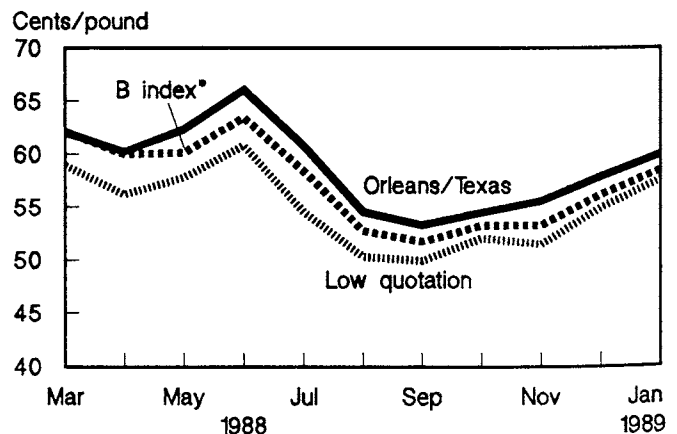
U.S. export shares as well as shipments to major U.S. markets are expected to fall this season (table B). Lower market shares are likely in the Pacific Rim textile-producing countries as well as in Western Europe. The important exception is China. China has booked almost 400,000 bales of a total 1988/89 cotton import projection of 1 million from the United States. Despite shipments to China, though, the U.S. share of global trade is projected at 21 percent, compared with 28 percent in 1987/88. However, China's larger imports, lower foreign supplies, and changes in the upland

Figure 3  
**U.S. A-Type Cotton Prices Rise Significantly**



\* Average of the cheapest five types of M 1-3/32 inch staple length offered on the European market.

Figure 4  
**U.S. Coarse Count Cottons Are Not Competitive**



\* Average of the cheapest five types of coarse-count cotton offered on the European market.

cotton program have increased export prospects over 500,000 bales since August.

### Cotton Prices Strengthen

U.S. cotton prices moved lower last season, reflecting larger U.S. and foreign production, stable consumption, and adequate stocks. The adjusted world price (U.S. equivalent of world prices) dropped below the loan rate during July and has remained below during the first 6 months of the 1988/89 marketing year.

The adjusted world price (AWP) continued to fall through the end of August. Since then, it has increased to near 51 cents per pound, up more than 9 cents from the early-season low. The U.S. average spot price and March futures have followed a similar pattern. However, the spread between March futures prices and the AWP has increased from nearly 5 cents per pound in early August to between 9-11 cents since then (table C). Several changes made in the 1988/89 upland cotton program altered these relationships. The spread between the average spot price and the AWP has narrowed from 11 cents during late August to near 5 cents in January.

Despite cotton prices' strengthening during late December and January, record CCC loan entries have been made this season. Producers have placed 10.3 million bales under

Government loan (table D). The previous record for one crop year was set in 1963, with 8.1 million bales entered.

The 1988 calendar year national average price was 56.5 cents per pound. Upland cotton producers who participated in the 1988 acreage reduction program received a deficiency payment rate of 19.4 cents per pound (the difference between the established target price and the calendar year average price). Some producers received advance payments of 6.4 cents per pound, leaving a balance of 13 cents which was paid in cash. Producers who did not request advance

Table B--U.S. cotton export shares to selected countries

Country	Percent			
	1980/84 average	1986/87	1987/88	1988/89 1/
Japan	44	56	47	39
Korea	85	77	76	60
Taiwan	46	56	57	15
Hong Kong	26	5	7	6
Italy	16	20	27	19
France	11	15	9	4
Germany	11	23	33	24
Portugal	10	11	7	5
Indonesia	55	43	35	32
Thailand	47	24	20	11
China	32	0	0	39 2/
World	31	26	28	21

1/ Based on estimates as of February 9, 1989. 2/ Based on February 16, 1989, Export Sales report and February World Agricultural Supply and Demand Estimates.

Table C--U.S. cotton prices, 1988

Month and day	Average spot market price 1/	March futures price 1/	Adjusted world price 2/
			Cents/pound
Aug. 4	57.23	53.95	48.27
11	57.27	54.23	47.49
18	56.08	51.21	45.44
25	51.93	49.47	41.62
Sept. 1	50.93	51.50	41.82
8	51.08	52.70	42.68
15	52.06	53.70	43.61
22	51.66	51.40	42.94
29	50.42	51.03	42.25
Oct. 6	50.56	52.35	43.25
13	52.07	55.65	44.06
20	52.13	54.28	44.70
27	53.51	56.00	45.07
Nov. 3	53.99	56.50	44.92
10	53.61	56.62	45.07
17	52.73	54.52	45.89
23	52.74	54.69	44.90
Dec. 1	54.31	56.88	45.96
8	54.78	58.09	47.37
15	55.02	58.38	48.66
22	55.25	59.25	49.02
29	54.07	57.85	49.33
Jan. 5	54.27	58.13	48.91
12	55.55	59.42	50.72
19	56.11	59.05	51.11
26	56.48	59.57	50.90

1/ Spot and March futures prices are for SLM 1-1/16 inch cotton, the U.S. base quality. 2/ Adjusted world price is the Northern Europe price adjusted to SLM 1-1/16 inch at average U.S. producing location. Adjusted world prices are applicable for the week following the date shown.

Table D--Cotton loan statistics 1/

Region	Loans made			Loans repaid			Loans outstanding			Loans forfeited		
	1986	1987	1988	1986	1987	1988	1986	1987	1988	1986	1987	1988
	1,000 running bales											
Southeast 2/	550.0	281.3	639.0	545.5	216.1	95.5	3.1	64.2	543.5	1.6	1.0	--
Delta 3/	2,553.5	1,811.3	3,948.0	2,518.3	1,706.4	790.3	30.2	103.5	3,157.7	5.1	1.4	--
Southern Plains 4/	1,860.3	2,196.1	4,050.4	1,846.2	1,559.5	326.1	10.2	634.8	3,724.3	4.0	1.8	--
West 5/	1,204.0	1,073.4	1,695.5	1,200.2	931.5	392.7	3.4	141.9	1,302.8	--	6/	--
U.S.	6,167.8	5,362.1	10,332.9	6,110.2	4,413.5	1,604.6	46.9	944.4	8,728.3	10.7	4.2	--

1/ Loans through Feb. 15, 1989. 2/ Alabama, Florida, Georgia, North Carolina, South Carolina, and Virginia. 3/ Arkansas, Louisiana, Mississippi, Missouri, and Tennessee. 4/ Kansas, Oklahoma, and Texas. 5/ Arizona, California, and New Mexico. 6/ Less than 100 bales have been forfeited.

payments received the full amount. Final deficiency payments of \$725 million for 1988 upland cotton were made during February.

### **Carryover Stocks Are Near Record**

The intent of the marketing loan program was to boost exports, allow U.S. mills to purchase competitively priced cotton, and eliminate surplus stocks. Initially, the program appeared to be accomplishing these goals. At the end of the 1986/87 season, upland cotton stocks were reduced by almost 50 percent and were less than 1 million bales above the desired carryover level. However, by the end of last season, cotton carryover increased by over three-quarters of a million bales, and by the end of this season, upland stocks are expected to increase an additional 3.4 million bales to 9.2 million, the second largest surplus in 20 years.

Many factors have contributed to the buildup in upland stocks. Record yields in 1987/88, a lower acreage reduction requirement, and another large crop in 1988/89 resulted in 30 million bales of production the past two seasons. U.S. upland production has not reached this magnitude since the mid-1960's. U.S. upland prices generally have not been competitive this season. This is due in part to the world price formula, which is based on price quotations that reflect offering prices rather than actual sales prices and which, despite recent revisions, does not fully reflect actual transportation costs. In addition, the 18-month nonrecourse loan term—combined with current procedures eliminating storage and interest charges on loan cotton when the world price is below the loan rate—has provided a disincentive to move cotton out of loan and into domestic and foreign mills. As a result, the high stock levels dominate the outlook for the remainder of the season as well as the 1989/90 marketing year.

### **Slight Improvement in Stock Levels Expected in 1989/90**

The early-season outlook for upland cotton in 1989/90 points to a slight improvement in excessive stock levels. This outlook is based on the 1989 upland cotton program, which again will limit planted acreage, and on a recovery in both U.S. mill use and exports.

The Secretary of Agriculture announced that the maximum 25-percent acreage reduction program will be in effect, double 1988's 12.5 percent. The target price will be 73.4 cents per pound (down 2.5 cents) and the loan rate for base quality will be the minimum 50 cents (down 1.8 cents). Marketing loan plan B will be implemented when the adjusted world price is below the loan rate. Under plan B, 1989-crop cotton pledged as collateral for a price support loan may be repaid at the lower of the AWP or the loan level.

Enrollment in the 1989 upland cotton program may exceed the previous year's 88 percent because of large supplies. If participation increases to 1986 and 1987 levels (or near 93 percent of the base), planted acreage could decrease to between 9.5 and 11.5 million acres, with approximately 1 million planted outside the program.

Area idled in the cotton program could increase to near 3 million acres, about the same as in 1986 and 1987. Assuming a normal season, harvested acreage might fall to the lowest in 3 years. Depending on yields, the 1989 upland crop could range between 12 and 15 million bales. Trend yields would indicate an upland crop approaching 13 million bales, over 2 million below this season's production.

### **Mill Use and Exports May Rebound**

Demand prospects may also improve next season. Competitive cotton prices relative to manmade fibers, continued strong consumer demand for cotton products, and strengthening textile activity next season should lead to increased cotton consumption by U.S. mills. Mill use will again be limited by competition from textile imports, but still should top 7 million bales.

Despite the changes made last August in the upland cotton program to make U.S. growths competitive in world markets, exports have not responded. Fierce price competition from foreign competitors has limited the potential for U.S. exports this season. However, prospects for 1989/90 are better. Increased world import demand and lower foreign exportable supplies should lead to larger U.S. upland cotton shipments. Upland cotton exports could range between 5.5 and 7.0 million bales.

Disappearance could exceed expected production by nearly 500,000 bales. However, ending stocks likely will remain well above the 4-million-bale level. Unless crop problems

Table E--Estimated 1988 and actual 1987 ELS cotton acreage, yield, and production 1/

State	Planted ---1,000 acres---	Harvested	Yield Lbs./acre	Production 1,000 bales
Arizona				
1987	91.0	90.8	1,126	213.0
1988	128.0	128.0	938	250.0
Texas				
1987	32.0	31.0	787	50.8
1988	40.0	39.5	729	60.0
New Mexico				
1987	14.0	13.9	642	18.6
1988	17.6	17.6	682	25.0
California				
1987	0.9	0.9	1,173	2.2
1988	1.8	1.8	853	3.2
Total				
1987	137.9	136.6	1,000	284.6
1988	187.4	187.0	869	338.2

1/ Based on January Crop Production.



arise, either in the United States or overseas, or additional program changes are implemented, it may take several years to reduce carryover supplies to the desired level.

## ELS Cotton Situation

### ELS Mill Use and Exports Strong

Extra long staple (ELS) cotton production in 1988/89 is estimated at 338,200 bales, up 19 percent from last season (table E). The record production this season is due to larger acreage (36 percent above 1987/88), which is offsetting yields 13 percent below 1987/88. Based on January 1 conditions, this season's average yield is estimated at 869 pounds per harvested acre. While down from last season's record yield, this amount is still above the 858 pound-per-harvested-acre average of the previous five seasons. Harvested area for 1988/89 is estimated at about 187,000 acres.

Total ELS disappearance is expected to reach 340,000 bales, 18 percent above last season. Domestic mill use for the first 5 months of the 1988/89 marketing year indicates stronger demand than last season. Mill use of ELS may reach 65,000 bales this season, 25 percent above last. ELS exports, bolstered by increased demand for stronger, finer yarns (for which ELS is well suited), are expected to reach a record 275,000 bales for 1988/89. Based on current estimates of domestic mill use and exports, total disappearance should about equal production. As a result, ELS ending stocks may fall to 45,000 bales—down 15 percent from last season's low level.

The Secretary of Agriculture has announced the 1989 ELS cotton program provisions. In response to the continuing tight stock situation, the acreage reduction provision (ARP) has been set at 5 percent—down from 1988's 10 percent. The target price for 1989/90 will be 96.7 cents per pound

Table F--ELS cotton supply and use in foreign producing countries

Year beginning August 1	1984	1985	1986	1987 prel.	1988 proj.	1989 proj.
	1,000 bales					
<b>BEGINNING STOCKS</b>						
Egypt, L. Stpl.	13	7	71	2	13	18
India	82	375	244	121	5	25
Israel	5	5	5	5	5	5
Peru	48	34	15	45	22	27
PRC	14	19	16	25	32	25
Sudan	200	209	201	283	136	133
USSR	32	34	80	81	74	74
Other producers	32	20	28	38	33	30
Subtotal	426	703	660	600	320	337
Egypt, ELS	98	72	62	10	9	12
Total	524	775	722	610	329	349
<b>PRODUCTION</b>						
Egypt, L. Stpl.	1297	1558	1324	1218	1066	1319
India	1758	1300	1499	1119	1420	1469
Israel	23	33	73	58	85	142
Peru	71	102	129	49	106	100
PRC	170	173	198	257	243	257
Sudan	361	309	341	195	237	253
USSR	908	1008	1076	1134	1276	1215
Other producers	26	40	47	59	60	59
Subtotal	4614	4523	4688	4088	4493	4814
Egypt, ELS	511	417	502	379	374	401
Total	5125	4940	5190	4467	4867	5215
<b>CONSUMPTION</b>						
Egypt, L. Stpl.	1040	1172	1062	1030	900	1035
India	1427	1420	1222	1100	1250	1131
Israel	7	8	10	10	15	15
Peru	51	69	48	51	41	55
PRC	155	160	170	200	200	200
Sudan	52	61	41	11	40	45
USSR	925	1030	1116	1183	1310	1228
Other producers	40	36	39	44	47	47
Subtotal	3697	3957	3708	3629	3803	3757
Egypt, ELS	158	110	231	148	140	154
Total	3855	4067	3939	3777	4066	3911
<b>EXPORTS</b>						
Egypt, L. Stpl.	311	346	350	195	175	285
India	38	11	400	135	150	350
Israel	16	25	63	48	70	125
Peru	34	51	52	20	60	50
PRC	10	15	20	50	50	45
Sudan	301	256	218	331	200	230
USSR	9	9	11	33	55	75
Other producers	25	26	29	52	48	48
Subtotal	744	739	1143	863	808	1208
Egypt, ELS	359	316	303	233	230	250
Total	1103	1055	1446	1096	1038	1458

Source: International Cotton Advisory Committee, Washington, D.C.

and the loan rate will be 81.77 cents. The ELS loan rate is equal to 85 percent of the simple average price received by farmers during 3 of the previous 5 years, excluding the years of highest and lowest prices. The target price for 1989 is 118.3 percent of the loan rate, and for 1990, 120 percent of the loan rate.

#### **Larger Acreage and Production Expected Next Season**

The early-season outlook for ELS cotton indicates increased acreage and production in 1989/90. With market prices high relative to target prices, enrollment in the 1989 program is likely to remain low. Planted area for 1989/90 could increase by about 50,000 to 70,000 acres to over 250,000. While the 5-percent ARP could entice increased enrollment in the 1989 program, the prospective enrollment increase should not significantly reduce acreage expansion. Assuming trend yields, production could approach 500,000 bales.

Strong demand for ELS cotton is expected in 1989/90, with domestic mill use stabilizing or increasing slightly and exports rising significantly. ELS exports in 1989/90 could total well above this year's use, assuming an expansion in world trade.

#### **Foreign Production Increases Slowly**

According to International Cotton Advisory Committee estimates for major ELS-producing foreign countries, both production and consumption are expected to increase in 1988/89 (table F). Foreign production is expected to approach 4.9 million bales, up about 9 percent from 1987/88. This increase is well below the 19-percent expansion in U.S. production for the same period.

Among individual foreign producers, total production in 1988/89 versus 1987/88 is expected to decline about 10 percent (157,000 bales) in Egypt, increase 12.5 percent (142,000 bales) in the Soviet Union, and increase 27 percent (301,000 bales) in India.

In 1989/90, foreign production is projected to gain about 7 percent, with the vast majority of the increase attributable to larger Egyptian outturn. Projections of a slight downturn in 1989/90 Soviet production are offset by projections of a slight expansion in India.

Consumption in foreign producing countries is projected to be up about 8 percent to 4.1 million bales for 1988/89. Among major foreign producers, 1988/89 domestic consumption-to-production ratios are estimated at .72 for Egypt, .88 for India, and 1.03 for the Soviet Union. In 1989/90, these ratios are estimated at .69, .77, and 1.01, respectively. With foreign producing countries consuming a large portion of their 1988/89 production, conditions appear favorable for U.S. exports this season. However, foreign producers are likely to respond to currently strong demand with increased

production in 1989/90, so the U.S. export share could come under greater pressure from foreign sources.

## **World Cotton Situation and Outlook**

At the end of 1987/88, foreign stocks-to-use ratios fell to the lowest since 1983/84, indicating a fairly tight supply. Despite higher foreign cotton production in 1988/89, sharply higher foreign exports and continued relatively high consumption are expected to offset production gains and draw foreign ending stocks down by another 10 percent this season. Stocks are likely to become especially tight among foreign export competitors (figure 5).

#### **Production Gains Raise Foreign Supplies**

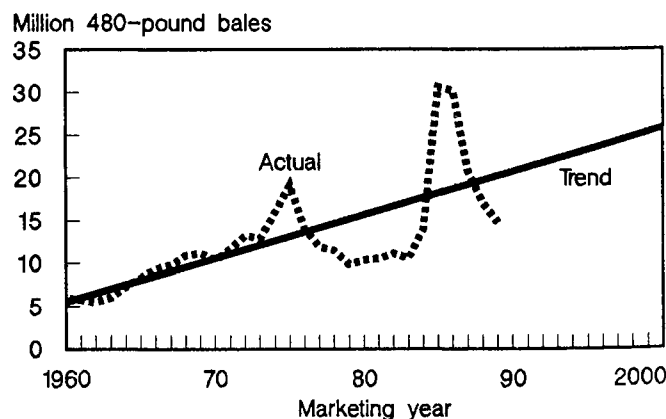
World cotton production is forecast up 4 percent in 1988/89, with most of the gain in area, up 6 percent (table G). Foreign area rose 1.3 million hectares, pushing foreign production up an estimated 2.5 million bales. Yields also improved in many countries, but a sharp drop in China pulled total foreign yields down.

Among the major producers, gains occurred in the Soviet Union, India, the West African countries, Turkey, Syria, Greece, Spain, and Mexico. Increases are expected in Paraguay and Peru also. Many of these producers experienced better weather in 1988/89 than in the previous season. Pakistan's production is estimated to be about the same.

China, Egypt, and Sudan harvested smaller crops in 1988/89. Adverse weather cut yields in China and Sudan; low domestic prices in Egypt continue to discourage cotton planting.

Three important Southern Hemisphere producers—Australia, Brazil, and Argentina—are also expected to har-

Figure 5  
**Competitors' Stocks Tighten**



Major competitors: China, Brazil, Paraguay, Mexico, Central America, Soviet Union, Egypt, Turkey, Sudan, India, Pakistan, Australia, and West African countries.

Table G--World cotton supply and use, 1987/88 and 1988/89 1/

Year beginning August 1	World less United States					World
	United States	Major importers 2/	Major exporters 3/	Other	Total foreign	
Million 480-pound bales						
<b>1987/88</b>						
Supply						
Beginning stocks	5.0	5.6	15.9	8.0	29.5	34.5
Production	14.8	1.3	45.0	19.5	65.8	80.5
Imports	4/	18.0	1.0	5.3	24.3	24.3
Use						
Mill use	7.6	18.4	37.5	19.8	75.7	83.3
Exports	6.6	0.8	11.1	5.1	17.0	23.6
Ending stocks	5.8	5.6	13.1	7.7	26.4	32.2
<b>1988/89</b>						
Supply						
Beginning stocks	5.8	5.6	13.1	7.7	26.4	32.2
Production	15.4	1.6	45.8	20.9	68.3	83.7
Imports	4/	17.3	1.7	5.4	24.4	24.4
Use						
Mill use	6.9	17.9	37.8	20.0	75.7	82.6
Exports	5.2	1.2	11.8	6.1	19.1	24.3
Ending stocks	9.2	5.4	10.8	7.6	23.8	33.0

1/ Based on Feb. 9, 1989, World Agricultural Supply and Demand Estimates. 1987/88 estimated and 1988/89 projected. Totals may not add and stocks may not balance because of rounding, a small quantity of cotton destroyed, and differences unaccounted. 2/ Eastern Europe, Western Europe, Japan, Hong Kong, Republic of Korea, and Taiwan. 3/ Australia, China, Central America, Egypt, Mexico, Pakistan, Sudan, Turkey, and the USSR. 4/ Less than 50,000 bales.

vest smaller crops this season. Comparatively low world cotton prices, particularly relative to the big gains this season in international prices of soybeans and grains, resulted in less cotton area planted in these countries. In Brazil and Argentina, early-season drought also delayed planting beyond the optimal period.

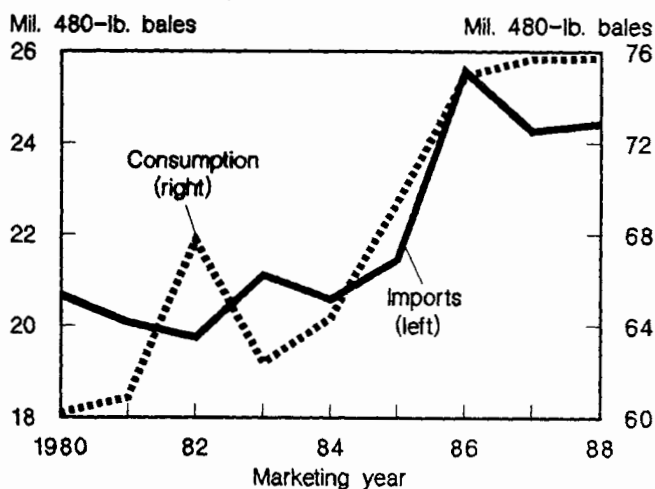
**Consumption Growth Weakens But Use Remains Relatively High**

Rising foreign production has increased supply. However, weak textile demand has reduced consumption growth and increased export competition. World consumption forecasts in 1988/89 are off fractionally, while foreign consumption is projected to be virtually identical to 1987/88.

Use continues to expand among producers with good 1988/89 crops, such as India, Pakistan, Turkey, and Greece. However, this growth is being offset by several factors, among which are weak demand among major importers in Western Europe and East Asia; tightening supplies that may keep consumption unchanged in China, the Soviet Union, and Egypt; and lack of domestic economic growth in debt-ridden countries such as Brazil and Mexico.

Despite reduced consumption, projected at 83 million bales, use remains high and import demand is still expected to be relatively large (figure 6). Imports are now projected at 24.4 million bales, 160,000 over last year. Import forecasts recently were raised because a smaller-than-expected crop led China to meet part of its strong demand with an estimated 1 million bales of previously unanticipated imports.

Figure 6  
**Import Demand Remains Strong, Despite Leveling Consumption**



**Competitive Prices Pushed Foreign Exports Up Sharply**

Foreign exports show dramatic gains this year, and are forecast at 12 percent (2.1 million bales) above 1987/88. Except for China, Egypt, and Brazil, exports are estimated up in nearly every foreign country because foreign prices remain below U.S. prices in world markets.

U.S. exports are expected to be off 21 percent, contributing to the rapid gain in U.S. stocks. The U.S. share of world cotton exports will fall from last year's more normal 28 percent to only 21.

## Foreign Stocks Tighten

While the U.S. is building stocks, foreign stocks are expected to fall 2.6 million bales. In 1988/89, foreign ending stocks-to-use ratios will slip below 1987/88 to a projected 31 percent, indicating tighter foreign supply.

Several key producing countries may have tight stocks by the end of 1988/89, including China, the Soviet Union, India, and Egypt. Low stocks in these countries are particularly critical because they reflect both potential reductions in next season's competing exportable supplies and unexpected import demand that often arises from these countries if production is lower than anticipated when supplies are short.

### 1989/90 Trade May Rise, Absorbing Some U.S. Stocks

World production in 1989/90 is likely to be only slightly above that of 1988/89, as rising foreign production is mostly offset by a decline in U.S. output resulting from reduced area. Increases in foreign production are particularly likely among the countries with the tightest stocks.

Pakistan and India are both likely to continue obtaining yield increases from improving cultivation practices; India could also raise area next season. China wants to increase area and production; its recently announced 19-percent domestic cotton price rise, more than the planned increase in grain prices, should aid in accomplishing this goal. As it has for the last several seasons, Egypt plans increased area. But, the Egyptians are likely to fail to meet that goal again in 1989/90 because of their low domestic cotton prices. The Soviet Union probably will reduce area again in 1989/90 in line with its long-range agricultural plans, so production gains there will depend upon better yields.

Foreign area and production gains could also be tempered by the still relatively low world cotton prices and the compara-

tively high international prices for competing crops. Although world market prices for cotton, represented by the A index, have risen since September, they are still below equivalent levels at the same time in 1987/88 (figure 7). Furthermore, cotton prices are 7 percent below last February, while prices for soybeans, wheat, and corn are respectively 25, 33, and 35 percent above last February.

World consumption in 1989/90 also may rise. In the developed countries, which are the major importers of cotton, 1989 income growth is projected higher than 1988. As incomes improve, textile demand tends to rise, raising cotton imports. Continued consumption growth among major cotton producers is expected, but because of their low beginning stocks, this growth may absorb much of their own production gains.

In addition, tremendous price increases for rayon and polyester fibers occurred recently in the international market. These relative prices should continue to favor cotton in 1989/90, encouraging more substitution of cotton for other fibers.

Currently it seems possible that import demand will rise, but tight foreign stocks and the absorbing of competitors' production by consumption gains may leave foreign exportable supplies insufficient to keep export competition as strong in 1989/90 as it was in 1988/89. If so, the U.S., with its large stocks, may be able to increase its exports and its export market share to more normal levels in 1989/90. A continuation of the current gradual upward trend in cotton prices could also help make U.S. prices more competitive in world markets.

## U.S. Wool Situation and Outlook

### Sheep Numbers Up

Recent data indicate the number of all sheep and lambs on January 1, 1989, was 10.8 million, almost 2 percent above the annual average of the previous 5 years. The 12 States producing predominately 60's-and-finer wool had 7.4 million head, an increase of 0.7 percent over the 1984-88 average. In contrast, the number of sheep in the remaining 38 States, 3.4 million, increased more than 4 percent. The average flock size in the finer wool States was 208, ranging from 48 in Oklahoma to 608 in Wyoming. The average flock size in the 38 States producing medium-grade wool was 24.

Raw wool mill consumption in the fourth quarter of 1988, 34.2 million pounds, clean, was 2 percent below the previous quarter and 1 percent below a year earlier (table H). Woolen system mill consumption in the fourth quarter, 13.7 million pounds, was up 13 percent from the third quarter but 9 percent below the average of the first and second quarters.

Figure 7  
**Prices Up, But Below Last Year**

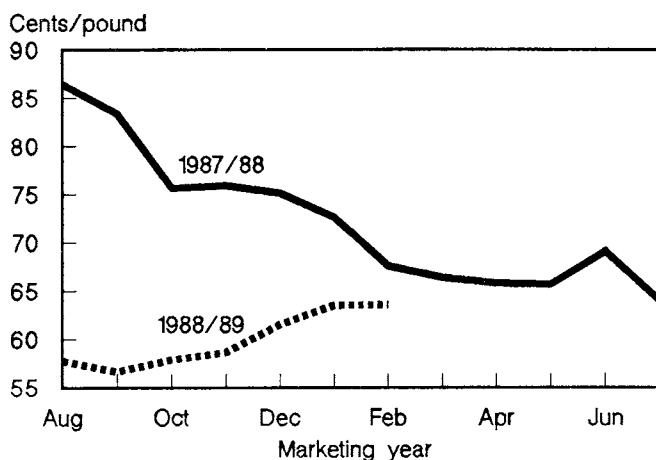


Table H--U.S. mill consumption of raw wool, scoured basis

Year	Apparel wool	Carpet wool	Total
1,000 pounds			
Jan.-Dec.			
1984	128,982	13,088	142,070
1985	106,051	10,562	116,613
1986	126,768	9,960	136,728
1987	129,677	13,092	142,769
1988 2/	128,317	15,826	144,143
Jan.-Mar.			
1984	36,623	3,438	40,061
1985	26,846	3,000	29,846
1986	32,465	2,583	35,048
1987	33,801	2,828	36,629
1988 1/	33,723	4,527	38,250
Apr.-June			
1984	36,252	3,940	40,192
1985	27,882	2,537	30,419
1986	33,653	2,387	36,040
1987	34,175	3,333	37,508
1988 2/	33,337	3,867	37,204
July-Sept.			
1984	29,326	2,721	32,047
1985	25,025	2,887	27,912
1986	30,106	2,739	32,845
1987	30,041	3,748	33,789
1988	30,001	4,462	34,463
Oct.-Dec.			
1984	26,781	2,989	29,770
1985	26,298	2,138	28,436
1986	30,544	2,251	32,795
1987	31,660	3,183	34,843
1988	31,256	2,970	34,226

1/ Revised. 2/ Preliminary.

Source: Bureau of the Census.

Traditionally, the third-and fourth-quarter woolen system wool use is less than the first half.

Fourth-quarter worsted mill consumption, 17.6 million pounds, had little change, down 2 percent from the previous quarter and up less than 2 percent from a year earlier. Carpet use, 2.97 million pounds, was two-thirds of the third quarter and 3 percent less than a year earlier.

Preliminary data indicate 1988 mill consumption, 144.1 million pounds, clean, was slightly more than 6 percent greater than the previous 5-year average. Raw wool use during 1988 in woolen mills, 55.6 million pounds, was 10 percent less than the 1983-87 average. Fashion trends have caused more worsted fabric to be used than woolen fabrics in women's skirting. Also, demand for sports coats using woolen fabrics was weaker.

In contrast, worsted system raw wool use, 72.7 million pounds, was more than 17 percent above the previous 5 years' average because of the continued strong demand for finer wool fabric.

Both the woolen system and the worsted used a smaller share of the 60's and finer in 1988 because of their higher prices. In the woolen system, the use of the finer wools dropped from 53 percent of total raw wool use in 1987 to 46 percent in 1988. In the worsted system, the share of the finer

wools in 1988 was 74 percent, down from 78 in 1987. The use of manmade fibers increased in both systems. Manmade fiber use in 1988 was 28 percent more than total apparel raw wool mill consumption, compared with 17 percent more the previous year. Total raw wool mill use in 1989 is forecast to be 137 million pounds, 5 percent less than 1988 (table I).

In 1988, about 15.8 million pounds of raw wool was used by the carpet industry, 31 percent above the previous 5-year average. Domestic wool carpet production has been stimulated by larger exports resulting from a weaker dollar and by higher priced imports.

U.S. imports of raw wool in the fourth quarter were 22.0 million pounds, clean, 37 percent above the third quarter and 9 percent below a year earlier (table J). Dutiable wool imports in the fourth quarter were 16.5 million pounds, 66 percent more than the third quarter. About 93 percent came from two countries: Australia, 88 percent, and New Zealand, 5 percent.

Duty-free imports were 5.6 million pounds, 9 percent below the third quarter. About 93 percent came from two countries: New Zealand, 72 percent, and the United Kingdom, 21 percent.

Raw wool imports in 1988 totaled 96.7 million pounds, clean, 6.6 percent above the previous 5-year average. Dutiable imports were 72.3 million pounds, more than 19 percent above the 1983-87 average. About 94 percent came from three countries: Australia, 85 percent; New Zealand, 6 percent; and Uruguay, 3 percent.

Duty-free imports, 24.4 million pounds, were 19 percent below the previous 5-year average. About 96 percent came from three countries: New Zealand, 78 percent; the United Kingdom, 13; and Argentina, 5.

The share of raw wool imports entering the United States through the New England and Middle Atlantic customs districts has declined from 45 percent in 1985 to 30 percent in

Table I--Wool supply and disappearance, clean content

Item	1983	1984	1985	1986	1987	1988*	1989*
Million pounds							
Stocks, January 1	58.4	58.9	51.6	50.7	46.9	45.4	46
Production	55.1	51.1	47.2	45.5	46.0	48.9	49
Imports	78.1	94.2	79.5	97.0	105.1	96.7	85
Diff. unacc.	8.9	-10.0	-9.6	-8.8	-8.8	0	0
Total supply	200.5	194.2	168.7	184.4	189.2	191.0	189
Mill use	140.6	142.1	116.6	136.7	142.8	144.1	137
Exports	1.0	0.5	1.4	0.8	1.0	1.2	1
Total use	141.6	142.6	118.0	137.5	143.8	145.3	138
Stocks, December 31	58.9	51.6	50.7	46.9	45.4	45.7	42

\* Estimated by USDA. All projections are rounded.

Source: USDA and Bureau of the Census.

1987 and 1988 (table K). Conversely, the percentage entering through the South Atlantic and other districts has risen from 55 percent to 73.

During 1988, about 64 percent of the duty-free wool came through the New England and Middle Atlantic regions, compared with 14 percent of the dutiable. In contrast, most of

the dutiable raw wool, 86 percent, entered through the South Atlantic and other customs districts, together with 36 percent of the duty-free.

U.S. prices of territory wool remained fairly constant from December into February. The 64's remained at \$4.50, clean basis, as did the 62's at \$3.63. The 58's were at \$2.53 in early February, up 5 percent from the December-January average, while the 56's remained at \$2.18 from December. The simple unweighted average price received by farmers in February for raw wool, grease basis, was \$1.23, up from \$1.07 in January and \$0.93 a year earlier (table L).

Table J--U.S. imports of dutiable and duty-free raw wool for consumption, clean content

Year	Dutiable	Duty-free	Total
-----			
1,000 pounds			
Jan.-Dec.			
1982	39,988	21,433	61,421
1983	49,371	28,688	78,059
1984	63,271	30,906	94,177
1985	50,164	29,308	79,472
1986	66,090	30,901	96,991
1987	74,054	31,066	105,120
1988	72,323	24,418	96,741
Jan.-Mar.			
1982	15,356	5,515	20,871
1983	10,549	5,639	16,188
1984	20,665	7,303	27,968
1985	15,139	7,397	22,536
1986	19,749	6,910	26,658
1987	20,434	5,805	26,239
1988	26,763	6,753	33,516
Apr.-June			
1982	10,798	6,620	17,418
1983	12,216	6,902	19,118
1984	16,761	8,126	24,887
1985	9,661	7,951	17,612
1986	16,744	7,401	24,145
1987	21,829	9,126	30,954
1988	19,150	5,965	25,115
July-Sept.			
1982	7,417	5,464	12,881
1983	10,818	6,614	17,432
1984	12,035	10,003	22,038
1985	11,573	7,158	18,731
1986	12,922	8,235	21,157
1987	13,974	9,761	23,735
1988	9,940	6,141	16,081
Oct.-Dec.			
1982	6,418	3,834	10,252
1983	15,788	9,533	25,321
1984	13,810	5,474	19,284
1985	13,790	6,803	20,593
1986	16,676	8,355	25,032
1987	17,818	6,374	24,192
1988	16,470	5,558	22,028

Source: Bureau of the Census.

Domestic prices for the finer grades of Australian wool, clean basis, tended to rise slowly in January and early February from the December low. The 80's averaged \$8.33 in January, up 5 percent from December, then softened to \$8.30 in early February. The 70's rose 6 percent to \$5.46, then settled back to \$5.30 in February. The 64's and 62's increased 8 and 9 percent, respectively, then both declined 2 percent to \$4.89 and \$4.54 in early February. The 58's increased 10 percent to \$3.79 before softening to \$3.72 in February.

Table L--Average U.S. farm prices per pound for shorn wool, grease basis\*

Month	1984	1985	1986	1987	1988	1989
-----						
Cents						
January	58.4	59.2	52.2	58.7	75.2	107.0
February	67.1	58.7	54.4	69.1	93.3	123.0
March	79.3	61.0	61.9	78.7	118.0	
April	87.9	67.9	70.0	99.7	153.0	
May	86.5	68.5	73.7	106.0	165.0	
June	86.6	69.8	75.5	108.0	161.0	
July	82.3	64.0	67.5	87.0	133.0	
August	78.5	60.2	65.9	83.1	128.0	
September	74.3	59.5	57.6	93.6	111.0	
October	80.2	66.6	69.7	95.5	135.0	
November	67.5	58.5	64.0	84.1	116.0	
December	69.4	56.8	59.4	81.4	101.0	
Average	79.5	63.3	66.8	91.7	124.1	

\* Weighted market average price.

Source: Agricultural Prices, National Agricultural Statistics Service.

Table K--Raw wool imports by regions 1/

Region	Duty-free				Dutiable				Total			
	1985	1986	1987	1988	1985	1986	1987	1988	1985	1986	1987	1988
-----												
Percent												
New England	34	34	30	30	28	25	16	13	30	28	20	17
Middle Atlantic	36	33	38	34	3	2	2	1	15	12	12	10
South Atlantic and other 2/	30	33	32	36	69	73	82	86	55	60	67	73
Total	100	100	100	100	100	100	100	100	100	100	100	100

1/ Imports entered through customs districts in the respective regions. 2/ Includes customs districts along the Gulf, the Mexican border, the Pacific Coast, and the Canadian border.

Source: Bureau of the Census.

## World Wool Situation and Outlook

The latest data indicate Australian wool production in 1988/89 to be 2.07 billion pounds, greasy, of which shorn wool was around 1.92 billion. Revised wool production totals for the 2 previous years were 2.02 billion in 1987/88 and 1.96 in 1986/87.

The Australian wool market was generally weaker as the season progressed into the third quarter. The first-quarter market indicator (a weighted average price in Australian cents per kilogram of 13 wool categories) stood at 1,052, the third highest of record. With softer demand, the average market indicator of the second quarter declined 5 percent to 999. During this period, the Australian Wool Corporation (AWC) stockpile almost tripled, going from 20,326 bales to 57,354 at the year's end.

While the market indicator in January averaged 999, demand weakened in late January and early February and the market indicator slipped to about 960. The AWC stockpile reached a low of 32,125 bales in mid-January and rose to 40,000 bales in early February. The year-earlier January stockpile was 41,153 bales.

During the first half of the season, Australia exported 720 million pounds of raw wool, greasy basis, 10.5 percent less than last year. Six countries accounted for almost two-thirds: Japan, 19 percent; the Soviet Union, 14; France, 10; Italy, 9; China, 8, and West Germany, 7.

The New Zealand wool market in the second quarter declined almost continuously. The market indicator, after reaching a season high of 741 in early October, ended the year at 666. The market indicator averaged 677 for the first half of the season, 10 percent above last year. Of the total of 298,122 bales offered during the last 7 weeks, the trade cleared 88 percent and the New Zealand Wool Board (NZWB) purchased 9 percent. The NZWB stockpile increased 12 percent during this period to 61,782 bales, from 54,969.

Six countries accounted for more than two-thirds of New Zealand's wool exports during July-November 1988: China, 36 percent; the United Kingdom, 8; the Soviet Union and Japan, 7 each; Belgium, 5; and the United States, 4.

In the new year, the market firmed slightly, with the market indicator averaging 677 in January and 694 in early February. The stockpile at mid-February was 76,000 bales, the highest since September.

The South African market, after reaching a record high in mid-October, began a decline that continued into late December. In this period, the market indicator dropped 18 percent from a season high of 2,363 to 1,948 on December 9. The

portion of the offering sold to the trade averaged 89 percent in November and December, compared with 94 percent in October.

The market rallied in January, with the market indicator averaging 2,203, 10 percent above the December average. About 92 percent of the January offering was sold to the trade.

## Mohair

U.S. mohair exports in the fourth quarter were 4.2 million pounds, clean, 44 percent above the previous quarter and 15 percent more than a year earlier. About 86 percent of the fourth quarter overseas shipments went to three countries: the United Kingdom, 73 percent; India, 9; and Taiwan, 4.

Mohair exports in 1988 were 14.4 million pounds, clean, 2.4 percent above 1987 and 31 percent above the average of the previous 5 years. The value of the 1988 exports was \$36.2 million, 19 percent below 1987. The average 1988 export price was \$2.52 per pound, clean, compared with \$3.19 in 1987.

Mohair prices in January have declined since last fall. Adult hair was \$1.50-\$1.60 per pound, compared with \$1.90 in November. Young goat was \$2.25, down from \$2.75. Kid was \$5.55, down from \$5.75.

The world market for mohair continues strong. About 85 percent of the South African clip has been sold. The demand results from the lower priced mohair being used as a substitute for the higher priced cashmere fiber.

## Manmade Fibers

Production of nonglass manmade fibers in the fourth quarter was 2.31 billion pounds, more than 3 percent above the third quarter and 2 percent more than a year earlier (table 14). End-of-the-year stocks in producers' plants were down 10 percent from September. Almost all this stock decline occurred in textile nylon and polyester filament and textile polyester staple. Mill consumption in the fourth quarter was 2.37 billion pounds, almost 5 percent above the third quarter and more than 5 percent greater than a year earlier.

Production of nonglass manmade fibers in 1988 was 9.2 billion pounds, almost 2 percent more than in 1987. Polyester staple and filament output was up 4 percent, reflecting increased use in textiles and carpets. Nylon filament production grew almost 2 percent, resulting from moderate growth in carpets and apparel. Nylon staple production decreased almost 5 percent because of slower shipments to carpet mills. Olefin staple output did not change in 1988 from 1987. Its uses in carpet and nonwoven markets were the same. Olefin

filament production was up 5 percent, principally because of growth in carpets and broadwoven fabric; acrylic did not change. Cellulosic filament was up 12 percent from improved broadwoven fabric markets, while cellulosic staple production was down more than 3 percent because of slower use of nonwoven and broadwoven fabrics.

Recent data indicate that planned capacity of all nonglass manmade fiber plants in 1990 will be 10.4 billion pounds, which represents an average annual growth of 1 percent. Staple fiber capacity is expected to decline 0.2 percent annually while filament capacity will grow 2.3 percent. The fiber types which will have the largest average annual growth rates in planned capacity are olefin filament, 5 percent; olefin staple, 3.9 percent; nylon filament, 3.9; and cellulosic staple, 2.6. Polyester filament capacity is expected to decline 2.5 percent annually and the staple 2.0 annually.

Plants producing nonglass manmade fibers operated in 1988 at about the same capacity as in 1987, 89 percent. Staple fiber plants operated at an average capacity of 89 percent, while filament plants were at 88 percent. To obtain desired return on investment, producers need to operate at 85 to 90 percent of capacity.

Fourth-quarter consumption data for the major fiber groups are shown in table 15. The carpet market, which takes about one-third of manmade fiber domestic shipments, continues to be the largest user, consuming 733 million pounds in the third quarter, 1 percent above the average of the first half of 1988 and 4 percent of the 1987 average. Nylon fiber, at 468 million pounds, constituted 64 percent of the carpet market and olefin fibers 28 percent. Estimates for the fourth quarter indicate that 460 million pounds of nylon went into carpets, 1 percent above the average of the previous 3 quarters.

Woven textiles continue as the second largest (27 percent) manmade fiber market. In 1988, this market had no growth. About 565 million pounds were used in the third quarter, no change from the first two quarters and 1 percent above the 1987 average. Polyester, at 57 percent, and olefin fibers, at 16 percent, together constitute 72 percent of this market.

The knit market used about 327 million pounds in the third quarter. Polyester's share, 175 million pounds, was 54 percent; nylon, at 64 million pounds, took 20 percent. Acrylic fibers, at 81 million pounds, accounted for 25 percent.

Prices of raw materials used to make noncellulosic fibers continued to rise in late 1988 and early 1989 (table M). Firm domestic sales and overseas shipments, aided by a weak dollar, supported price increases.

Prices of para-xylene (a raw material for polyester fiber) have increased 2-3 cents per pound since last fall. This demand has been strengthened by the growing use of polyester plastic in container applications. The price of ethylene glycol (also a raw material for polyester fiber) continued to rise into early 1989 because of many needs for ethylene-derived chemicals. The price of cyclohexane (a raw material for nylon) is closely related to the price of benzene, which has been rising.

The acrylonitrile price rose 3 cents in December, the first increase in more than 7 months. Price increase has been infrequent because of sluggish acrylic fiber sales and infrequent increases in the price of propylene, a precursor. Propylene's price rose to \$0.20 per pound in January, from \$0.17 during most of 1988.

Table M--Reported spot prices of raw materials for manmade fibers, 1988/89

Product	Jan.	Feb.	March	April	May	June	July
Para-xylene 1/	17.5	17.5	17.5	17.5-21.5	21.5	22.8-23.5	23.5-25.5
Propylene 1/	18	18	17	17	17	17	17
Ethylene glycol 1/	22	26-28	30-32	30-32	27-27.5	30-32	42-45
Cyclohexane 2/	1.054	NA	1.199	1.260	1.219	1.219	1.219
Acrylonitrile 1/	37-38	NA	NA	NA	36	36	36
Caprolactam 2/	85	85	85	85	85	85-87	87-90
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
							1989
Para-xylene 1/	23.5-25.5	25.5-26.5	25.5-26.5	25.5-26.5	26-27	28	28
Propylene 1/	17	17	17	17	19	20	NA
Ethylene glycol 1/	42-45	45	45-50	44-48	44-48	44-60	NA
Cyclohexane 2/	1.219	1.3017	1.3017	1.3017	1.3017	1.75545	1.75545
Acrylonitrile 1/	36	36	36	36	39	39	39
Caprolactam 2/	87-90	87-90	87-90	87-90	NA	NA	NA

1/ Cents per pound. 2/ Dollars per gallon. NA = not available.

Source: Chemical Marketing Reporter.



# China's Cotton Industry

by  
Patricia Sheikh and Henry Wagley\*

**Abstract:** China is a country with a history of cotton production dating back 2000 years. China's position as the world's largest producer of cotton and a major exporter of cotton and textiles is a recent phenomenon resulting from flexible policies adopted at the third Plenum of the Party Central Committee in 1978. This report outlines China's cotton production, use, and trade policies, and their effects on the Chinese cotton industry and its practices.

**Keywords:** Production, trade, textiles, consumption.

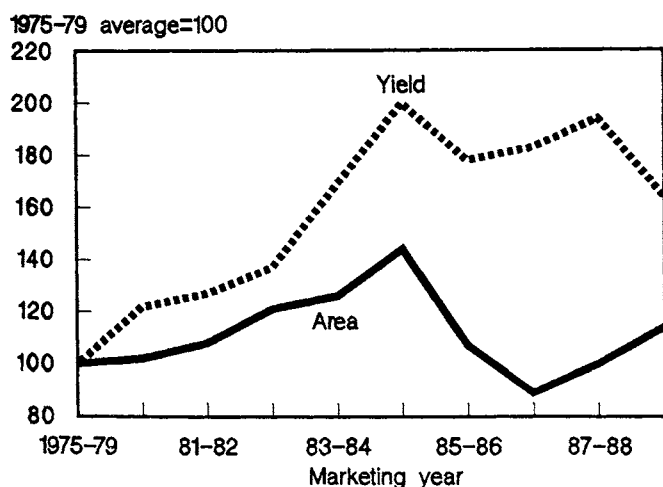
China's cotton production during the last 10 years can be categorized in three distinct phases. The first occurred during 1978-84 and was characterized by rapidly rising output. This period culminated in 1984, when China produced a record crop of 28.7 million bales. The second period took place from 1985 to 1986, when output declined sharply as a result of policies to reduce surplus production. The current phase, which began in 1987, again emphasizes expanded output. This phase, however, is more concerned with satisfying rapidly accelerating domestic consumption, maintaining raw cotton exports, and increasing exports of finished textile garments.

During the first phase, the production responsibility system was instituted in 1980, and became the catalyst behind the phenomenal growth in China's cotton output. In fact, the responsibility system has been so successful that China, once a major cotton importer, has now become a major cotton exporter. Under this program, price incentives stimulated cotton production. For example, in 1980 China produced 12.4 million bales. By 1984, economic incentives, to a large ex-

tent, were responsible for lifting the crop to a record 28.7 million bales. Cotton production was also encouraged by popularizing the use of improved varieties, utilizing more chemical fertilizers, intensifying cultivation practices, and granting farmers more decision-making authority.

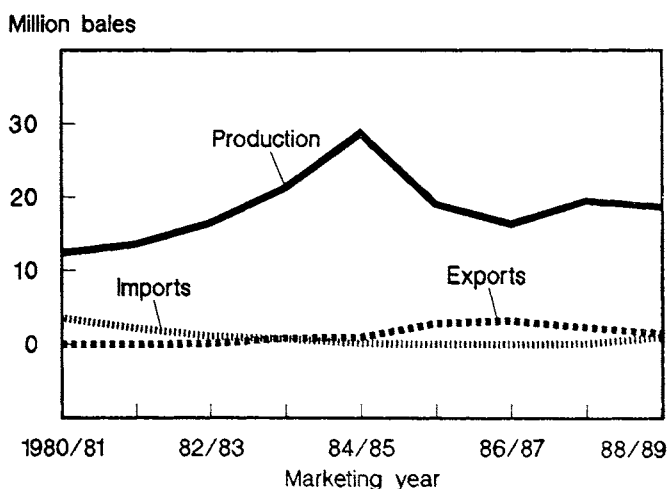
After the record crop of 1984, the Government adopted a new policy which emphasized restricted output in order to bring supply and demand back into balance. In particular, the Government felt that the supply of cotton exceeded domestic utilization and export demand, resulting in a large stock buildup. In accordance with this new policy, the Government announced under the Seventh Five-Year Plan for National Economic and Social Development (1986-90) a national procurement target of 19.5 million bales. In contrast, the preceding policy automatically procured all cotton produced. Under this new policy, the Government's Cotton and Hemp Corporation would purchase cotton from individual households only as specified in their cotton contract. Cotton contracts specified the quantity and quality of cotton to be produced, the varieties to be grown, the purchase price, and the time of procurement.

Figure 1  
**China's Cotton Area and Yield, 1975-88**



\* Agricultural economists, Foreign Agricultural Service, USDA.

Figure 2  
**China's Cotton Production and Trade, 1980-88**



Above-quota production was to be used for making high-quality quilts and padding clothing. This cotton was to be in addition to the 1.4 to 1.6 million bales that are normally used for padding but not included in total textile consumption figures.

This policy successfully reduced production to 19.0 million bales of cotton in 1985 and was continued during the 1986/87 cotton season. However, policymakers did not anticipate the rapid rise in consumption during this second phase, which continued to emphasize decreased output. Consequently, the third or current phase was implemented, again emphasizing expanded production through economic incentives. But this time adequate supplies are needed to fulfill rapidly rising domestic consumption, raw cotton export commitments, and textile exports, which earn lucrative foreign exchange. Whether all of these aims will be accomplished remains to be seen. Nevertheless, one outcome of this policy is that planted area increased from 4.8 million hectares in 1987 to an estimated 5.5 million in 1988. Production, however, is currently estimated at 18.7 million bales, or 4 percent below a year earlier, because of unfavorable weather conditions during the growing season.

This season, all cotton farmers will be paid for 70 percent of their cotton at the regular price and for 30 percent at the set bonus price. Unlike the past, no differential will be given according to producing region. Farmers will also receive a bonus for fertilizer and diesel fuel. For every 100 kilos of cotton sold to the state, the state has agreed to provide 70 kilos of fertilizer and 5 kilos of diesel fuel at a fixed price. In addition, the provincial government will receive a 128-yuan subsidy for each ton of cotton sent from a producing province to a nonproducing province. Above-quota cotton production can be sold only to the local Cotton and Hemp Corporation. It cannot be exported or sold on the free market. This year the state is the sole agency to buy cotton. This means that the state Cotton and Hemp Corporation must purchase all cotton produced by farmers. The only year an open market existed for producers was during the 1985/86 cotton season.

### **Producer Marketing**

Cotton is produced at the farm level by direct contract between the producer and the local office of the Cotton and Hemp Corporation. Contracts are signed annually, including designated area and variety to be planted. Reportedly, cotton is sold on a lint cotton basis. Some producers were reported to be holding back cotton deliveries this season because a shortage of funds was preventing some procurement stations from paying upon receipt of the cotton and because many farmers expected a price increase. The Central Government announced that prices would not be increased. However, it was reported to be providing additional funds to the procurement system plus setting up a program of partial payment in cash and partial payment in coupons to be used

in purchasing crop inputs, or in bank deposits. In several provinces, the cotton mills and/or local government were providing bonuses to producers delivering cotton this season.

In China, cotton is picked by hand, usually 7 to 10 times. Because the 1988 growing season was delayed in many areas where double cropping is practiced, plants were pulled out of the ground while still holding many unopened bolls. The cotton plants were placed against trees, buildings, and along the road, where bolls were removed as they opened. The emptied fields were then planted with winter wheat.

Cotton is placed in bags as it is harvested, then emptied onto sections of plastic or tarps. The cotton is taken to the procurement station by carts, either pushed by hand or pulled by horses or tractors. Deliveries are scheduled in advance. However, waits of 2 hours or more are not unusual during harvest. Each delivery is sampled, weighed, and graded. The sample is given a code number to ensure anonymity. The sample is ginned and tested in a laboratory at the procurement station. Moisture content of 10 percent is the standard. Deliveries must not exceed a maximum moisture content of 12 percent.

The cotton is unloaded and stacked by pitchfork into modules at the station. The modules are covered with tarps until the cotton is ready for ginning. After ginning, the cotton is stored in bales under a tarp at the procurement station or moved to centralized storage at the provincial level. Cotton can move from the centralized storage direct to mills, to export stations, or to cotton-deficient provinces.

### **Domestic and Export Marketing Situation and Policy**

China is the world's largest consumer of cotton. Consumption has grown significantly in recent years to fuel the domestic textile industry. Estimated at 15.1 million bales in marketing year 1980/81, consumption has grown to an estimated 20 million bales annually in 1987/88 and 1988/89.

The large textile mill sector is the principal outlet for China's cotton. During 1987/88, the textile industry accounted for about 86 percent of China's cotton use; raw cotton exports took roughly 14 percent. China's textile policy demands that the industry supply both a large domestic population, which is demanding better and more stylish textile products, and an equally important export market that generates scarce foreign exchange.

Textile industry capacity is reported at 26 million spindles and about 700,000 looms. Approximately 80 percent of the spindles are in state mills and 20 percent in local rural industry mills. China's current policy reportedly stresses the need for a steady flow of cotton to state mills. Small, uneconomical rural mills which produce poor-quality goods were reportedly facing cutbacks in electric power and other

China cotton supply and utilization

	Area	Yield	Begin. stocks	Prod.	Imports	Total supply	Use	Loss	Exports	Ending stocks
	Hectares	Kg/ha				-1,000 bales-				
1975	4955	479	5400	10900	900	17200	11500	0	250	5450
1976	4929	420	5450	9500	650	15600	11600	0	200	3800
1977	4845	422	3800	9400	1600	14800	12200	0	100	2500
1978	4867	445	2500	9950	2125	14575	13100	0	15	1460
1979	4512	487	1460	10100	4100	15660	14100	0	12	1548
1980	4920	549	1548	12400	3550	17498	15100	0	6	2392
1981	5185	571	2392	13600	2199	18191	16200	0	0	1991
1982	5828	616	1991	16500	1085	19576	16400	0	75	3101
1983	6077	763	3101	21300	664	25065	16000	0	760	8305
1984	6923	903	8305	28700	85	37090	16000	0	944	20146
1985	5140	805	20146	19000	1	39148	18400	0	2822	17925
1986	4306	824	17925	16300	16	34242	20200	0	3169	10872
1987	4844	876	10872	19500	86	30459	20000	0	2322	8136
1988	5500	740	8136	18700	1000	27837	20000	0	1500	6336

Source: Foreign Agricultural Service, USDA

inputs. The Central Government's State Planning Commission has mandated the closure of all unproductive mills with less than 100,000 spindles.

Textile production has increased substantially in recent years. Yarn production, which was reported at 2.9 million tons in 1980, had risen to 4.4 million in 1987, while cloth production shows a lesser growth, from 13.5 billion meters in 1980 to 17.3 billion in 1987. Rationing of cotton goods was lifted in November 1983. Stores and open markets are currently well supplied with textile products for retail sales. Reports indicate annual per capita consumption of 3.7 kilograms of textile goods.

Furthermore, textile exports have risen rapidly in conjunction with production. Exports of cotton yarn were reported at 147.4 million meters in 1984/85, but had risen to 250.4 million by 1986/87. Cloth exports had risen similarly from 1.67 billion meters in 1985 to 2.34 billion in 1987.

China has developed quality bases to consolidate and develop the infrastructure needed for an improved raw cotton export system. The bases are located in Shangdong, Jiangsu, Hebei, Henan, and Hubei provinces and the Xinjiang Autonomous Region. These counties are located along railroad lines where they receive a priority on rail transportation, warehousing, improved ginning equipment, and facilities capable of producing international-size bales.

China's raw cotton trade has changed dramatically in recent years. Prior to the 1983/84 marketing season, China was a net importer of cotton and a sizable market for U.S. and other non-Chinese growths. During 1983/84, Chinese exports increased sharply to 760,000 bales. Exports reached a peak of 3.2 million bales in 1986/87 before dropping to 2.3 million in 1987/88 and a forecast 1.5 million in 1988/89. Imports of cotton became insignificant after 1983/84; however, tight supplies have led to significant purchases of foreign

growths this season. U.S. 1988/89 export sales commitments to China totaled 317,700 running bales as of December 29, 1988. Total Chinese 1988/89 imports from all origins are forecast at 1.0 million bales.

### Outlook: China at the Crossroads

Activity this season points out vividly that China has reached a crossroads with respect to cotton production. With rapidly rising domestic consumption, increased output is needed. However, China has limited arable land and there is intense competition for land among the crops. China's current yield is already among the world's highest, so sharp increases in yield in the future are unlikely. To compound this problem, both raw cotton exports and cotton textile products are vital foreign exchange earners, while per capita textile consumption rates are among the world's lowest. As living standards continue to improve, more fiber consumption is likely, and either increased production or more imports will be needed to meet this demand. Exports of raw cotton are likely to continue, but may be limited by available supplies.

As in past years, there is a great deal of uncertainty over how much cotton will be planted in China, the world's largest producer. China recently announced a procurement price increase of 35 yuan per 50 kilos of 1989-crop cotton. Additional fertilizer will also be available to farmers at official government prices based on cotton plantings. These measures should help China retain its role as a major cotton producer and a major exporter of both raw cotton and textiles, while at the same time meeting its rapidly rising domestic consumption requirements.

However, according to a recent survey, farmers do not perceive these measures as being lucrative enough to increase sowings. Consequently, some cotton area is likely to shift to other crops which, unlike cotton, can be sold profitably on the free market.

# Raw Cotton Processing Capacity and Utilization Rates

by  
Edward H. Glade, Jr.\*

**Abstract:** Cotton ginning capacity in each major producing State was estimated for 1987/88. Actual gin operating results are compared with potential volumes to calculate estimated utilization rates for each State. Average gin capacity ranged from a low of 10.6 bales per hour in New Mexico to a high of 21 bales in California. Gin utilization rates averaged only 29 percent in South Carolina, but over 125 percent in California.

**Keywords:** Cotton ginning, capacity utilization rates, gin numbers.

The cotton ginning sector provides the initial transformation of raw cotton into a marketable textile fiber. With the separation of the lint and cotton seed, the first step in the marketing process begins.

This article presents the results of an analysis to estimate the current raw cotton processing capacity in each cotton-growing State, and the extent of capacity utilization during the 1987/88 season. Information was developed from secondary sources and a mail survey of U.S. cotton gins.

Beltwide gin processing capacity is a function of the number of gins, their size (as measured by rated output per hour), and the number of operating hours during the season. When data on capacity are related to records of actual volumes ginned, a measure of gin utilization rates is obtained.

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## Gin Numbers and Volumes

During 1987/88, a total of 1,650 U.S. cotton gins operated (table 1). Approximately 73 percent of these were concentrated in the South Central and Southwest regions. About 14 percent of the gins (228) processed the Western crop, accounting for 27 percent of all ginnings, while in the Southeast, 13 percent of the total (225 gins) accounted for only about 6 percent of beltwide ginnings in 1987/88.

The number of cotton gins has declined over the years in response to increasing operating costs, shifts in location of production, and the construction of newer, high-capacity gins. Also, industry adoption of improved harvesting and seed cotton storage systems such as module builders has resulted in fewer ginning facilities being needed. Currently, fewer gins process approximately the same size crop as in earlier years. During the 1987 season, the 1,650 active gins

Table 1--Number and location of U.S. cotton gins, 1983-87 seasons

Region/State	Number of active gins in				
	1983	1984	1985	1986	1987
	Number				
<b>Southeast:</b>					
Alabama	87	91	84	82	82
Georgia	56	53	61	57	60
North Carolina	34	37	36	36	36
South Carolina	51	53	49	48	47
Total	228	234	230	223	225
<b>South Central:</b>					
Arkansas	138	143	132	129	128
Louisiana	92	93	89	86	84
Mississippi	247	247	237	223	217
Missouri	48	54	50	50	50
Tennessee	78	79	74	73	70
Total	603	516	582	561	549
<b>Southwest:</b>					
Oklahoma	78	76	71	69	69
New Mexico	33	33	31	30	28
Texas	643	629	601	545	551
Total	754	738	703	644	648
<b>West:</b>					
Arizona	98	100	91	85	84
California	166	169	163	146	144
Total	264	269	254	231	228
<b>United States</b>	<b>1,849</b>	<b>1,857</b>	<b>1,769</b>	<b>1,659</b>	<b>1,650</b>

Source: U.S. Dept. of Commerce, Bureau of the Census.

processed 14.1 million bales, compared with 13.9 million bales processed by the 2,685 gins in 1977/78.

The average volume of cotton processed per gin varies between seasons because of different crop sizes and the number of active gins. However, the overall trend has been for a declining number of gins to process an increasing number of bales per gin. Figure 1 shows the number of active gins during the 1972-87 crop years and the corresponding average number of bales processed per gin. In 1972/73, approximately 3,700 bales were ginned by the average cotton gin during the season. By the 1987/88 season, gin volume had increased to an average of over 8,500 bales—representing a 128-percent increase in average volume, but only a 47-percent decline in the number of gins during the period.

### Gin Size

Cotton gin size is usually measured in manufacturer's rated capacity—that is, the maximum number of bales which can be ginned per hour under ideal operating conditions. This can range from as low as 2-3 bales per hour to 35 bales or more. Data on the capacities of operating cotton gins during the 1987/88 season were obtained by questionnaire mailed to 950 gins. Responses were analyzed and results used to estimate the size distribution of gins in each producing State grouped by four capacity categories. Table 2 shows the estimated number of U.S. cotton gins falling into each size group by State during 1987/88.

Gin size tends to be smaller, on the average, as one moves from West to East, or from the newer to the older production areas. Approximately 21 percent of all gins were rated at 8

bales per hour or less in 1987, with many of these smaller facilities concentrated in Arkansas, Mississippi, and Texas. Most of the modern gins with capacity of 19 bales per hour or over are located in the Western States, especially California. In addition, to increase capacity, many gins in other areas have installed new equipment, including Universal Density presses and improved seed cotton handling and cleaning equipment.

The increasing capacity of U.S. gins in combination with other changing technology has altered industry structure and improved overall ginning efficiency. The use of modules as temporary field storage for seed cotton and the ability to

Figure 1  
**U.S. Cotton Gin Numbers and Average Volume Processed**

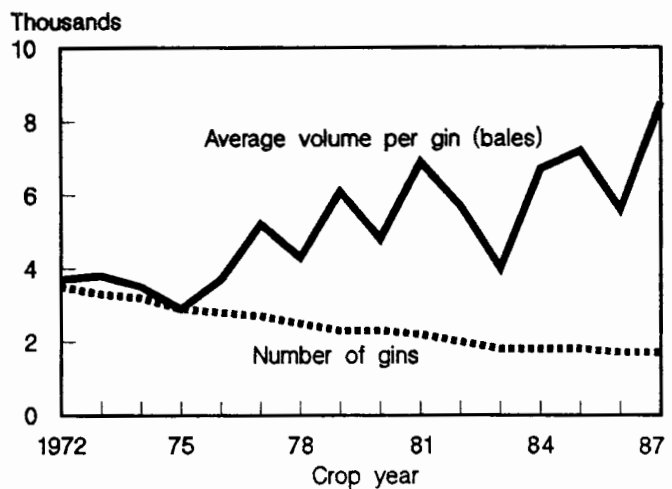


Table 2--Size distribution of U.S. cotton gins, 1987/88

Region/State	Gin capacity (bales per hour)				Total
	1-8	9-13	14-18	19 and over	
	Number				
<b>Southeast:</b>					
Alabama	28	22	17	15	82
Georgia	15	30	10	5	60
North Carolina	8	20	4	4	36
South Carolina	15	17	10	5	47
Total	66	89	41	29	225
<b>South Central:</b>					
Arkansas	43	18	49	18	128
Louisiana	4	25	22	33	84
Mississippi	23	47	71	76	217
Missouri	9	18	20	3	50
Tennessee	31	17	13	9	70
Total	110	125	175	139	549
<b>Southwest:</b>					
Oklahoma	27	23	8	11	69
New Mexico	7	17	4	0	28
Texas	112	198	140	101	551
Total	146	238	152	112	648
<b>West:</b>					
Arizona	22	26	13	23	84
California	6	40	23	75	144
Total	28	66	36	98	228
<b>United States</b>	<b>350</b>	<b>518</b>	<b>404</b>	<b>378</b>	<b>1,650</b>

Source: Data estimated from unpublished USDA survey.

move large loads more quickly over longer distances make the demand for individual gin services more price-elastic, increasing capacity utilization while maintaining charges at competitive rates.

### Utilization Rates

The trend toward fewer, more efficient gins is expected to continue. However, in most areas, total capacity of gins greatly exceeds annual production requirements. But, like an electric utility, gins must provide service for the peak period during the season. During the normal 13-15 week ginning season, volume builds slowly to a peak 2-3 week period when seed cotton is being received faster than it can be ginned. In many areas, gins may operate 24 hours a day with two shifts during the peak of harvest.

While actual levels of operation vary widely between gins, and the length of time between initial harvest and completion of all activity is also variable, a generally accepted norm of 906 total annual hours of operation is used to measure full seasonal utilization. Moreover, rated gin capacity cannot be maintained throughout the season, as down time is required for repair, maintenance, and training. Therefore, an efficiency rate of 85 percent of rated capacity is assumed to represent a sustained ginning output during the season.

Total potential volume, or 100-percent gin utilization, was estimated as follows:

- Rated gin capacity x efficiency rate = hourly volume  
(bales per hour) (85-percent)
- Hourly volume x total seasonal hours (906) = potential volume

The actual rate of gin capacity utilization over the complete 1987/88 season was estimated by dividing the actual average volume per gin by the calculated potential volume.

Table 3 shows the results of this estimation for each cotton-growing State in 1987/88. In general, as gin size increases, utilization rates are also higher. States in the Southeast had an average capacity of 12 bales per hour, and an average utilization rate of only about 46 percent. Gins in the Southwest operated at over 70 percent of full capacity during 1987/88, except for New Mexico gins, which have been consistently underutilized for a number of years.

In the South Central region, exceptionally large crops in Louisiana and Tennessee strained gin capacity in many areas, resulting in utilization rates exceeding 90 percent. In Mississippi, however, some excess capacity is still evident despite a larger-than-usual 1987 crop. The average rate of

Table 3--Average gin capacity and utilization rate by State, 1987/88

Region/State	Gin capacity 1/ Bales/hour	Utilization 2/ rate Percent
<b>Southeast:</b>		
Alabama	12.0	50.9
Georgia	12.2	59.3
North Carolina	11.4	33.7
South Carolina	12.0	28.8
Average	12.0	45.8
<b>South Central:</b>		
Arkansas	14.1	69.5
Louisiana	16.6	91.4
Mississippi	17.4	72.5
Missouri	12.9	64.6
Tennessee	11.9	98.5
Average	15.4	77.3
<b>Southwest:</b>		
Oklahoma	11.6	71.2
New Mexico	10.6	49.3
Texas	14.2	74.7
Average	13.8	73.2
<b>West:</b>		
Arizona	14.6	84.3
California	21.0	125.3
Average	18.6	110.2
<b>United States</b>	<b>14.8</b>	<b>75.9</b>

1/ For each State, average capacity per gin is the simple average of reported rated capacities of individual gins. Regional average is the States' average, weighted by States' gin numbers. 2/ Ratio of actual volume ginned during the season to the potential volume or capacity.

gin utilization was estimated at 72.5 percent—a relatively low level for an area where average gin size is over 17 bales per hour.

California gins operated at a utilization rate of over 125 percent during 1987/88. Based on the established criterion of full capacity utilization (85 percent of rated capacity for a seasonal total of 906 hours), the average gin processed approximately a 25-percent larger volume than expected. The extensive use of cotton module systems for seed cotton storage and handling has allowed California gins effectively to extend the ginning season. Large quantities of seed cotton are stored in the field in covered modules, permitting a more orderly movement to the gin. Over 75 percent of the California crop was ginned from field-stored modules in 1987/88.

### Conclusions

Prospects are for the number of U.S. cotton gins to continue to decline, but at a slower pace than in recent years. Average gin size (rated capacity) should increase as older, less efficient gins close and others consolidate and install new high-capacity equipment. It is also likely that some new gins will be built, especially in areas where current capacity is not adequate during years of large harvests.

Annual volumes available for processing are expected to total 12-15 million bales in future years. Therefore, rates of capacity utilization in U.S. gins will still vary from season to season, but should continue to improve over time.

# Cotton Acreage In Major Producing Areas

by  
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**Abstract:** Regional acreage response is estimated for upland cotton from 1960-88 using ordinary least squares. Expected net returns for cotton and competing crops are used to explain fluctuations in plantings. Expected net returns are constructed using a combination of lagged market and support prices and Government program variables. Elasticities of cotton acreage vary considerably among regions with respect to expected net returns from cotton and competing crops. The rate of adjustment to changing economic conditions varies among regions as well. Price and income support, supply control, and other Government programs were important factors for explaining acreage response. Forecasts of 1989 upland cotton acreage range from 10.06 to 10.22 million acres.

**Keywords:** Cotton acreage supply response, expected returns, futures prices, lagged market prices, Government program variables.

Current estimates of supply response for crops are important for evaluating changes in Government programs, farm prices and incomes, yields and acreage, market structure, and technology. In theory, farmers apportion their acreage among their crops to maximize expected net returns. Numerous factors are considered in forming profit expectations, including expected marketing prices and yields, production costs, support prices, loan rates, and farm program restrictions. This article examines the usefulness of lagged market prices and Government program variables for deriving expected net returns.

Acreage response equations are estimated for the United States and the major cotton-producing USDA farm production regions (FPR's) to evaluate differing responses to farm programs and relative expected returns. The FPR's include the Southwest (Arizona, California), Southern Plains (New Mexico, Oklahoma, Texas), Delta (Arkansas, Louisiana, Mississippi), Southeast (Alabama, Florida, Georgia, South Carolina), and Appalachian (Kentucky, North Carolina, Tennessee, and Virginia).

## Model Structure

Crop prices and price ratios have generally been used to estimate crop acreage response (3,5,6,8,10), sometimes deflated by variable costs of production (1,11) or a producer price index (3). Combinations of lagged, support, and futures prices are commonly used to derive farmers' price expectations. Over time, prices become less reliable as indicators of profitability because of changes in yield growth rates among crops, income support provided through Govern-

ment programs for crops, and relative costs of producing crops. These factors have given rise to substantially different relationships in the profitability of specific crops in each FPR. Therefore, prices are not a reliable proxy for crop returns.

Government involvement in cotton markets leads one to expect Government programs will affect cotton acreage response when program variables are incorporated. Empirical work has shown that Government programs do affect cotton acreage response (3,4,5). The model used here considers Government variables with lagged market prices to reflect information available to farmers at planting. The estimation approach using Government program variables takes into account not only prices and expected net returns, but also other major factors affecting farmers' profitability and planting decisions.

Market prices lagged one year are used for calculating expected net returns. The general model of cotton acreage response is:

$$A = f(\text{NRc}, \text{NRo}, A_{t-1}, \text{DIV}, \text{ARP}, \text{TREND})$$

where **A** is the cotton acreage planted, **NRc** and **NRo** are the expected net returns of cotton and other competing crops, respectively, **A<sub>t-1</sub>** is cotton acreage lagged one year, **DIV** is acreage diverted by set-aside and acreage retirement programs, **ARP** is a dummy variable used to shift the acreage response function in years when an acreage retirement program was in place for cotton, and **TREND** is a trend variable. The resulting supply equation is a partial adjustment model in which expected price is simply the previous year's price.

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Net returns for a given crop are estimated as:

$$\begin{aligned}
 \text{NR} = & [(Pt - \max(\text{Pm}, \text{Pl})) * (1 - S - \text{PLD}) * \text{Yp}] \\
 & + [\max(\text{Pm}, \text{Pl}) * (1 - S - \text{PLD}) * \text{Ye}] \\
 & + [\text{PLD} * \text{PLDPMT} * \text{Yp}] \\
 & - [\text{VCCROP} * (1 - S - \text{PLD})] \\
 & - [\text{VCIDLE} * (S + \text{PLD})]
 \end{aligned}$$

where:

- Pt = target price,
- Pm = lagged regional market price,
- Pl = loan rate,
- Yp = regional program yields,
- Ye = expected regional yield, as defined earlier,
- S = percentage of set-aside acreage,
- PLD = percentage of paid land diversion,
- PLDPMT = payment rate for paid land diversion,
- VCCROP = variable costs of crop production,
- VCIDLE = estimated variable costs of idled cropland.

Target price, set aside, and paid land diversion are relevant only for crops and years where such programs were in effect. Paid land diversion is weighted when payments were made on only a portion of the crop acreage base or program yield. Variable cost of idled acreage accounts for land costs that

are still incurred on idle land, such as conservation planting, interest, and taxes.

In addition to cotton and cottonseed production, the competing crops modeled include sorghum (Southern Plains FPR and United States), soybeans (Delta States, Southeast, and Appalachian FPR's), and wheat (Appalachian and Southwest FPR's). The coefficients of expected net returns for all these competing crops were significant in the estimated equations except for wheat in the Southwest FPR.

Data for 1960-88 are used. Expected yields are calculated as a simple average of the 3 previous years' realized yields (17). Variable costs of crop production are USDA estimates for 1975-86 (7,12,13,14). Variable costs for 1987-89 and 1960-74 were generated by regression on an index of prices paid by farmers for crop production (16); correlation coefficients between variable costs and the price index for all crops in all regions exceeded 0.9.

## Results

Net returns are in dollars and acreage is measured in thousands of acres. Coefficients on lagged acreage are Nerlove's "coefficients of adjustment" (see 10).

The relatively small coefficients of adjustment indicate relatively rapid adjustments in acreage in response to changes in cotton's profitability in the United States and the Southeast FPR (table 1). The Southwest and Appalachian equations

Table 1--Estimated cotton acreage response function using Government program variables and market prices to calculate expected net returns

Region	Constant	Lagged acreage	Exp. ret. of cotton	Exp. ret. of sorghum	Exp. ret. of soybeans	Exp. ret. of wheat	Diverted acreage	ARP	Trend	AR(1)	DUM75
U.S.A.	9178.559* [1132.209]	.287* [.072]	28.827* [3.582]	-53.151* [5.956]			-.478* [.091]	-1772.673* [410.083]			
	Adj. R2 = .890; F-stat. = 37.261; Serial corr. = .489(Dh)										
Southwest a/	-465.080 [433.279]	.430* [.103]	1.243** [.494]				-.723* [.297]	-175.262* [88.876]	15.106* [7.816]		-556.622* [167.145]
	Adj. R2 = .848; F-stat. = 26.985; Serial corr. = .582(Dh)										
Southern Plains	7776.174* [1203.003]		4.660 [4.736]	-18.571** [8.784]			-.554* [.136]	-942.770** [384.387]		.852* [.122]	
	Adj. R2 = .796; F-stat. = 22.119; Serial corr. = 2.023(DW)										
Delta States a/	3444.656* [204.248]		2.717 [1.706]		-12.230* [2.791]		-.498** [.225]	-667.190* [189.221]			-1267.789* [368.490]
	Adj. R2 = .754; F-stat. = 18.177; Serial corr. = 1.908(DW)										
Southeast	3266.627* [907.604]	.320** [.145]	3.230* [.861]		-6.634* [1.852]			-254.762* [84.561]	-32.483* [10.855]		
	Adj. R2 = .925; F-stat. = 69.973; Serial corr. = -1.353(Dh)										
Appalachian	465.796* [112.536]	.414* [.107]	1.966* [.388]		-2.290* [.682]		-2.879** [1.295]	-.463** [.176]			
	Adj. R2 = .905; F-stat. = 54.194; Serial corr. = -.075(Dh)										

a/ The fitted equations resulted in large outliers for 1975 in most of the regions modeled, with estimated acreages exceeding actual plantings that year. Autocorrelation and other problems in the Southwest and Delta FPR's, reflected by insignificant variables, could not be corrected without deleting the observation for 1975 from the data set.

The variable names are defined as follows: Lagged acreage = acreage of cotton planted lagged by one year; exp. ret. = expected net returns of cotton, sorghum, soybeans, and wheat; diverted acreage = total acreage diverted under the cotton program; ARP = zero-one dummy variable where it is set at one for years when an acreage retirement program was required as part of cotton program participation, zero otherwise; Trend = linear trend (60, 61, etc.); AR(1) = estimate of first-order autocorrelation coefficient (rho) in the Cochrane-Orcutt procedure for correction of autocorrelation; DUM75 = dummy variable for 1975; serial corr. = test statistic for serial correlation, either the Durbin-Watson statistic (DW) when there is no lagged dependent variable in the equation or the Durbin-h statistic (Dh) for detecting autocorrelation with a lagged dependent variable; F stat. = the F-test statistic; and adj. R2 = R2 adjusted for degrees of freedom.

\* denotes significance at the 1-percent level; \*\* denotes significance at the 5-percent level. Standard errors are in brackets.



Table 2--Elasticities of cotton acreage with respect to expected net returns to cotton

Region	Short-run elasticity	Long-run elasticity
United States	.341	.479
Southwest	.233	.409
Southern Plains	.078 a/	a/b/
Delta States	.168 a/	a/b/
Southeast	.281	.413
Appalachian	.295	.503

a/ Coefficient for expected net returns to cotton is not statistically significant.

b/ Coefficient for lagged acreage is not statistically significant.

have larger coefficients of adjustment, indicating somewhat slower acreage adjustments to changing Government program returns for cotton. Lagged acreage is not significant in the Southern Plains and Delta States FPR's. It is likely that planted cotton acreage in the Southern Plains and the Delta is relatively sensitive to market forces. However, variations in upland cotton planting in these regions appear to be affected more by net returns from competing crops and other factors than they are by net returns from cotton production. Other equations indicate high levels of significance with respect to expected net cotton returns.

The acreage retirement program (ARP) variable was entered as a zero-one dummy to determine its effect during years that an ARP was required for cotton program participation. A significant effect was exerted in five of the six equations. A strong trend effect was found in the Southwest (positive) and Southeast (negative) FPR's.

The fitted equations resulted in large outliers (overestimates) for 1975.<sup>1/</sup> No sound economic reasons were found to explain this underplanting, however, so it was not desirable to delete the observation for that year. Autocorrelation and/or multicollinearity problems in the Southwest and Delta FPR's could not be corrected without dummifying 1975 out of the equations and dropping significant variables out of the equations, so the DUM75 variable was used only in those FPR's.

### Elasticities of Expected Net Returns to Cotton

To determine the relative effects of cotton returns on cotton acreage, own-returns elasticities with respect to the expected net returns of cotton were calculated for each region. Calculated at the means, elasticities are shown in table 2. Elasticities vary widely, indicating their sensitivity to the geographic production region being studied.

<sup>1/</sup> The exceptions were the equations for the Southern Plains, Southeast, and Appalachian FPR's. The residual in the U.S. equation was about one standard deviation from the fitted value. The residuals in the Southwest and Delta FPR's, on the other hand, were two and three standard deviations. By dummifying 1975, the adjusted R<sup>2</sup> increases in the U.S. and regional equations from .02 to .15 and increases the significance levels of the explanatory variables. Bounded influence or other estimation methods that minimize/reduce the influence of outliers could also be used, but were not tried in this study.

Among the FPR's, own-returns elasticities (both short-run and long-run) are largest in the Appalachian (table 2). This indicates relatively stronger response to changing cotton returns than in other regions. Elasticities are relatively small in the Southern Plains and Delta States FPR's, which is expected given the insignificance of the coefficients on expected net returns to cotton in those regional equations. Other factors exert a stronger statistical effect on cotton acreage in those two regions than in other areas.

Long-run elasticities are calculated according to Nerlove (9), and depend on the rate of regional adjustment to changing economic conditions as measured by the coefficient of adjustment. Long-run elasticities are also highly variable among regions. The Appalachian FPR's long-run elasticity with respect to expected net cotton returns is greater than the elasticity in the United States equation. This is due to the Appalachian FPR's relatively large coefficient of adjustment and short-run elasticity. Long-run elasticities were not calculated for the Southern Plains and Delta States FPR's because the coefficient of adjustment was not significant in those regions' equations.

### Forecast of 1989 U.S. Cotton Acreage Plantings

A preliminary forecast of 1989 U.S. cotton plantings is made using January 1989 information. Only preliminary information on program participation is available for estimating acreage reduction under the set-aside provisions of the 1989/90 cotton program. Potential increases in land diversion under the Conservation Reserve Program (CRP) and other acreage reduction (0/92 and 50/92) programs are not considered for forecasting purposes. Acreage reduction is estimated based on 1988 program participation, and set-aside acreage should approximately double with the doubling of the set-aside rate (12.5 percent in 1988/89, increased to 25 percent in 1989/90). Average prices through January were used as an estimate of 1989/90 season-average market price.

Forecasts for 1989 upland cotton planting are made using different set-aside scenarios, and range from 10.1 to 10.2 million acres (table 3). Estimates from the model have been fairly accurate under 1981 and 1985 farm legislation, with errors of less than 3 percent in most years. The 1989 forecast should be tempered by the preliminary data available.

Table 3--Forecasts of 1989 planted cotton acreage in the United States

Year	Estimated with the model	Actual planted acreage
----- Thousand acres -----		
1989	10,063 - 10,222	
1988	12,241	12,310
1987	10,555	10,269
1986	10,714	9,933
1985	10,279	10,601
1984	11,052	11,065
1983	7,546	7,863
1982	10,784	11,275

## Conclusions

Cotton acreage response was estimated using lagged market prices and Government program variables to derive farmers' expectations of net returns from crops. Different expectations of net returns, as they are influenced by price expectations, affect estimates of cotton acreage response. Depending on which prices are used to derive expected net returns, the supply elasticities will vary with respect to explanatory variables such as lagged cotton acreage, expected returns to cotton, and expected returns to competing crops.

Some conclusions can be drawn from estimates reported here. First, regional equations showed that different structural forces are at work in different regions. The importance of lagged acreage varies, suggesting that dynamic adjustment to economic forces differs among regions. The importance of competing crops and the acreage of planted cotton vary as well. As a result, elasticities on expected net returns vary greatly among regions, indicating that a policy for income support or supply control will have differential regional effects on farmers.

Second, cotton acreage has fluctuated in the 1980's because of market movements and Government policies that have increased net returns to cotton relative to competing crops. Acreage is up in southeastern growing regions, and evidence suggests that soybeans cannot compete with program cotton. Cotton acreage base restrictions under current legislation lock up land in the cotton program, and penalize cotton farmers for planting soybeans on their base. Declining profitability of double-cropping soybeans and wheat may be another reason for reduced southern soybean acreage and resulting increases in cotton acreage.

Third, model formulations other than those tried here could possibly yield better results. An extension of this study would be to incorporate a weighted average of lagged market, support, and futures prices for deriving expected net returns. Another possible scheme would be to weight the returns by program participation, such that program returns would be used for farmers participating in the cotton program and market returns would be used for the remainder of upland cotton acreage.

Finally, previous work concluded that models should be specified using program variables when Government policy is an important element in farm prices and income. The supply of cotton not only is affected directly by Government programs, but also appears to be affected significantly by the profitability of other crops, which are supported to varying degrees by farm policy. Government program variables are essential for analyzing and forecasting cotton supply.

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Table 1--Cotton: Acreage, production, and yield, by State

State	Planted acres			Harvested acres			Lint yield per harvested acre				Production					
	Average 1983-87	1986	1987	1988 1/	Average 1983-87	1986	1987	1988 1/	Average 1983-87	1986	1987	1988 1/	Average 1983-87	1986	1987	1988 1/
	1,000 acres							Pounds				1,000 bales 2/				
Alabama	302	315	335	375	299	313	333	355	596	506	572	514	380	330	397	380
Arizona 3/	324	250	290	350	322	249	289	349	1,281	1,301	1,410	1,197	855	675	849	870
Arkansas	460	490	555	695	445	480	550	675	664	602	786	747	628	602	901	1,050
California 3/	1,170	1,000	1,150	1,350	1,160	990	1,140	1,335	1,095	1,088	1,259	1,025	2,646	2,245	2,989	2,850
Florida	21	20	30	33	20	19	29	29	700	707	646	497	29	28	39	30
Georgia	205	225	250	350	194	195	245	315	619	455	662	564	257	185	338	370
Kansas	1	1	1	1	1	1	1	1	333	336	480	427	1	1	1	1
Louisiana	579	580	605	735	571	570	600	645	665	567	782	707	796	673	977	950
Mississippi	964	1,020	1,020	1,230	951	1,000	1,010	1,190	714	571	829	738	1,428	1,190	1,745	1,830
Missouri	158	178	190	240	151	160	189	237	602	588	838	628	198	196	330	310
New Mexico 3/	66	63	66	77	56	50	62	69	647	595	689	717	76	62	89	103
North Carolina	85	82	96	126	84	81	95	124	547	646	495	511	97	109	98	132
Oklahoma	387	400	420	460	357	350	400	400	390	288	415	348	234	210	346	290
South Carolina	107	118	120	145	105	113	119	142	142	370	428	500	119	87	106	148
Tennessee	336	340	440	540	329	335	435	535	540	567	700	529	382	396	634	590
Texas 3/	4,780	4,850	4,700	5,600	4,150	3,450	4,400	5,300	392	353	506	471	3,428	2,535	4,635	5,200
Virginia	1	1	2	3	1	1	2	3	452	554	373	560	2	2	1	3
Total: Upland	9,946	9,933	10,269	12,310	9,196	8,357	9,899	11,704	596	547	702	620	11,556	9,525	14,475	15,107
American-Pima	95	112	138	199	95	111	137	187	858	890	1,000	869	174	206	285	367
United States	10,041	10,045	10,407	12,497	9,291	8,468	10,035	11,891	599	552	706	623	11,730	9,731	14,760	15,446

1/ Crop Production report, Jan. 11, 1989. 2/ Bales of 480-pounds net weight. 3/ Upland only.

Table 2--U.S. cotton supply and use, 1980/81-88/89

Crop year	Area			Supply				Disappearance					Farm price 5/
	Planted	Harvested	Yield	Beginning stocks 1/	Production 2/	Imports	Total	Mill use 3/	Exports	Total	Unaccounted 4/	Ending stocks	
	1,000 acres		Lbs./acre	1,000 480-lb. bales							Cents/lb.		
<b>ALL KINDS</b>													
1980	14,534	13,215	404	3,000	11,122	27	14,149	5,891	5,926	11,817	336	2,668	74.7
1981	14,330	13,841	542	2,668	15,646	26	18,340	5,264	6,567	11,831	123	6,632	54.3
1982	11,345	9,734	590	6,632	11,963	20	18,615	5,512	5,207	10,719	41	7,937	59.4
1983	7,926	7,348	508	7,937	7,771	12	15,721	5,928	6,786	12,714	-232	2,775	66.4
1984	11,145	10,380	600	2,775	12,982	24	15,781	5,540	6,215	11,755	76	4,102	57.8
1985	10,685	10,229	630	4,102	13,432	33	17,567	6,399	1,960	8,359	140	9,348	56.3
1986	10,045	8,468	552	9,348	9,731	3	19,082	7,452	6,684	14,136	80	5,026	52.4
1987 6/	10,407	10,035	706	5,026	14,760	2	19,788	7,617	6,582	14,199	182	5,771	64.2
1988 7/	12,497	11,891	623	5,771	15,445	2	21,218	6,900	5,200	12,100	82	9,200	8/
<b>UPLAND</b>													
1980	14,461	13,143	402	2,962	11,018	26	14,006	5,828	5,893	11,721	329	2,614	74.4
1981	14,272	13,783	542	2,614	15,566	18	18,198	5,216	6,555	11,771	140	6,567	54.0
1982	11,274	9,663	589	6,567	11,864	12	18,443	5,457	5,194	10,651	52	7,844	59.1
1983	7,863	7,285	506	7,844	7,676	8	15,529	5,861	6,750	12,611	-225	2,693	66.0
1984	11,065	10,299	599	2,693	12,852	21	15,566	5,491	6,125	11,616	74	4,024	57.5
1985	10,601	10,145	628	4,024	13,277	33	17,334	6,338	1,855	8,193	148	9,289	56.1
1986	9,933	8,357	547	9,289	9,525	3	18,817	7,385	6,570	13,955	80	4,942	51.5
1987 6/	10,269	9,899	702	4,942	14,475	2	19,419	7,565	6,345	13,910	209	5,718	63.7
1988 7/	12,310	11,704	620	5,718	15,107	2	20,827	6,835	4,925	11,550	88	9,155	8/
<b>EXTRA-LONG STAPLE</b>													
1980	72.5	71.7	698	38	104.2	1	143	63	33	96	7	54	108.0
1981	58.6	58.0	659	34	79.6	8	142	48	12	60	-17	65	96.9
1982	70.9	70.5	672	65	98.7	8	172	56	13	69	-10	93	101.0
1983	63.0	62.7	725	93	94.7	4	192	67	36	103	-7	82	107.0
1984	80.1	79.6	786	82	130.4	3	215	49	90	139	2	78	92.8
1985	84.0	83.6	891	78	155.1	0	233	61	105	166	-8	59	91.8
1986	111.5	111.1	890	59	205.9	0	265	67	114	175	0	84	89.9
1987 6/	137.9	136.6	1,000	84	284.6	0	369	52	237	289	-27	53	103.7
1988 7/	187.4	186.9	869	53	338.2	0	391	65	275	340	-6	45	8/

1/ Compiled from Bureau of the Census data and adjusted to an August 1 480-lb. net weight basis. Excludes pre-season ginnings. 2/ Includes pre-season ginnings. 3/ Adjusted to August 1-July 31 marketing year. 4/ Difference between ending stocks based on Census data and preceding season's supply less disappearance. 5/ Season average, including allowance for unredeemed loans. 6/ Estimated. 7/ Projected. 8/ USDA is prohibited by law from publishing cotton price forecasts.

Table 3--Cotton supply and disappearance of all kinds, by months, United States, 1985/86-88/89 1/

Date	Supply					Disappearance						
	Beginning stocks 2/			Total	Ginnings 5/	Imports	Total supply	Mill use 6/	Exports	Total use	Unac-counted	Ending stocks 7/
At mills	Public storage 3/	Other 4/										
1,000 480-lb. net weight bales												
1986/87												
Aug.	812	8,502	34	9,348	642	0	9,990	581	393	974		9,016
Sept.	696	7,988	332	9,016	1,834	0	10,850	603	387	990		9,860
Oct.	610	8,377	873	9,860	2,964	0	12,824	660	648	1,308		11,516
Nov.	590	9,998	928	11,516	2,267	0	13,783	554	552	1,106		12,677
Dec.	606	10,631	1,440	12,677	1,125	1	13,803	556	570	1,126		12,677
Jan.	650	10,690	1,337	12,677	702	1	13,380	621	747	1,368		12,012
Feb.	670	10,486	856	12,012	197	0	12,209	587	544	1,131		11,078
Mar.	741	9,520	817	1,078		0	11,078	676	653	1,329		9,749
Apr.	731	8,204	814	9,749		0	9,749	661	660	1,321		8,428
May	754	7,164	510	8,428		0	8,428	642	488	1,130		7,298
June	745	6,167	386	7,298		0	7,299	655	468	1,123		6,176
July	707	5,054	415	6,176			6,176	656	575	1,231	80	5,026
Season	812	8,502	34	9,348	9,731	3	19,082	7,452	6,684	14,136	80	5,026
1987/88												
Aug.	713	4,000	313	5,026	440	0	5,466	666	420	1,086		4,380
Sept.	678	3,388	314	4,380	2,842	0	7,222	694	315	1,009		6,213
Oct.	607	5,104	502	6,213	4,452	0	10,665	713	367	1,080		9,585
Nov.	557	7,766	1,262	9,585	3,642	0	13,227	666	615	1,281		11,946
Dec.	569	9,911	1,466	11,946	2,255	1	14,202	645	721	1,366		12,899
Jan.	664	11,023	1,212	12,899	925	0	13,824	621	663	1,284		12,540
Feb.	750	10,616	1,174	12,540	204	0	12,744	649	740	1,389		11,355
Mar.	811	9,540	1,004	11,355		0	11,355	706	779	1,485		9,870
Apr.	827	8,385	658	9,870		0	9,870	610	571	1,181		8,689
May	825	7,277	587	8,689		0	8,689	630	517	1,147		7,542
June	790	6,239	513	7,542		1	7,543	603	554	1,157		6,386
July	748	5,281	357	6,386		0	6,386	477	320	797	182	5,771
Season	713	4,000	313	5,026	14,760	2	19,788	7,617	6,582	14,199	182	5,771
1988/89												
Aug.	737	4,863	171	5,771	825	0	6,596	676	265	941		5,655
Sept.	677	4,614	364	5,655	1,513	0	7,168	618	265	883		6,285
Oct.	607	5,235	443	6,285	4,734	0	11,019	588	235	823		10,196
Nov.	589	8,569	1,038	10,196	4,938	0	15,134	581	398	979		14,155
Dec.	580	12,241	1,334	14,155	2,646	0	16,801	496	670	1,166		15,635
Jan. 8/	596	14,074	965	15,635	646	0	16,281	629	644	1,273		15,008

1/ Compiled from Bureau of the Census data and adjusted to 480-lb. net weight bales. 2/ August stocks adjusted to an August 1 basis, excluding preseason ginnings. 3/ Adjusted to 480-lb. bales by use of monthly conversion factors for mill stocks. 4/ Primarily cotton on farms and in transit. Estimated by subtracting public storage and mill stocks from total stocks. 5/ August data include preseason ginnings. 6/ Adjusted to a calendar month. 7/ Supply less disappearance. End-of-season stocks adjusted by Bureau of the Census data. Differences primarily reflect varying bale weights. Monthly data are rounded. 8/ Preliminary and estimated.

Table 4--Index of prices of selected cotton growths and qualities, and price per pound, U.S. cotton, c.i.f. Northern Europe, 1983-88 1/

Year beginning August 1	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
Cents/pound													
<b>"A" index 2/</b>													
1983	90.80	89.85	88.11	89.13	89.36	87.58	87.44	88.43	88.99	88.88	83.71	78.99	87.61
1984	75.52	73.16	73.63	72.64	71.98	71.40	69.21	67.34	66.26	65.07	62.85	61.10	69.18
1985	56.97	53.43	49.01	48.04	48.25	51.82	54.52	52.35	48.50	45.42	41.04	37.44	48.90
1986	37.16	43.50	51.23	52.81	59.17	65.68	65.85	62.96	66.21	76.60	79.30	83.24	61.98
1987	86.60	83.61	76.17	75.83	75.29	72.19	67.49	66.34	65.75	65.57	68.78	68.23	72.65
1988	57.74	56.75	57.64	58.61	61.26	63.12							
<b>Memphis 3/</b>													
1983	88.94	88.15	88.06	88.81	89.25	85.50	85.38	88.20	89.63	91.25	83.00	78.94	87.09
1984	75.85	74.00	74.69	73.25	74.00	74.75	72.94	73.70	75.94	74.80	72.44	70.38	73.90
1985	68.20	67.94	68.56	68.45	67.67	69.15	70.07	71.75	72.88	73.55	41.25	38.05	64.79
1986	37.75	44.69	52.35	54.25	62.08	65.31	64.75	62.56	65.20	75.06	76.19	81.75	61.83
1987	87.38	83.06	76.77	76.44	74.95	72.75	69.81	70.75	72.38	75.31	79.95	76.56	76.34
1988	60.75	60.45	62.12	63.94	65.81	67.18							
<b>Calif./Ariz. 3/</b>													
1983	91.88	91.75	91.50	92.31	92.25	88.31	89.13	91.90	92.13	94.92	84.65	79.69	90.04
1984	75.90	74.38	75.19	74.00	74.08	74.25	72.13	72.94	75.81	73.70	71.94	70.63	73.75
1985	68.55	67.38	68.25	68.15	67.17	68.45	69.19	70.75	72.25	73.25	40.25	35.95	64.13
1986	36.69	45.44	54.55	57.00	65.75	69.25	68.44	64.69	67.75	78.75	80.63	86.65	64.63
1987	91.81	87.81	80.95	79.19	78.25	76.25	73.50	74.80	76.13	78.62	81.80	76.75	79.65
1988	64.19	64.10	65.94	66.13	67.31	69.12							
<b>"B" index 4/</b>													
1983	76.53	76.44	76.01	79.59	83.06	82.96	81.36	81.89	84.83	87.09	80.74	73.98	80.37
1984	69.26	66.11	65.18	64.50	63.48	61.96	58.58	54.55	54.78	54.98	52.21	48.98	59.55
1985	47.03	45.35	43.61	41.42	40.83	43.15	45.14	43.19	40.88	38.70	33.03	28.77	40.93
1986	27.75	32.55	40.19	43.95	52.32	60.88	61.41	58.00	61.33	71.40	72.90	76.96	54.97
1987	81.55	78.44	70.77	71.73	71.08	68.15	64.21	62.69	61.30	59.50	63.73	61.50	67.89
1988	52.76	51.75	53.24	53.28	56.17	58.45							
<b>Orleans/Texas 5/</b>													
1983	73.38	73.25	71.88	74.63	77.88	76.81	77.56	79.10	82.25	85.81	75.44	72.00	76.67
1984	68.65	66.44	66.25	65.40	65.08	65.94	63.88	62.15	62.69	62.40	61.13	60.50	64.21
1985	60.90	61.00	61.69	61.65	61.58	61.50	61.75	62.07	62.13	63.85	31.32	27.80	56.44
1986	28.00	32.56	41.55	44.82	53.17	59.12	60.81	57.50	60.10	68.94	70.56	75.40	54.38
1987	80.94	77.44	71.40	70.69	69.65	68.19	65.56	66.95	67.38	69.87	72.30	66.25	70.55
1988	54.56	53.30	54.50	55.56	57.87	59.93							

1/ All prices are based on Thursday quotes. 2/ The "A" index is an average of the cheapest five types of M 1-3/32" staple length cotton offered on the European market. 3/ The Memphis and California/Arizona territories are based on Middling 1-3/32". 4/ The "B" index is based on coarse grades of cotton varying in staple length from 1" to 1-3/32". 5/ Based on SLM 1" cotton.

Source: Cotton Outlook, Liverpool Cotton Services LTD.

Table 5--C.i.f. Northern Europe price quotations for principal growth of "A" type cotton

Month & week	California/ Arizona	Memphis Territory	Russia	China	Africa	Central America	Australia	Turkey	Paraguay	Mexico	Pakistan	"A" index 1/
U.S. cents/pound												
1988												
Aug. 4	65.00	61.75	59.25	62.50	63.50	59.00	61.25	75.00	64.00	60.75	56.75	59.40
11	66.75	63.25	59.50	63.00	62.50	59.75	61.00	75.00	63.75	61.00	57.50	59.75
18	63.75	60.25	57.75	60.25	59.25	55.50	58.00	75.00	60.00	58.00	55.25	56.90
25	61.25	57.75	55.75	58.25	58.00	53.50	56.50	70.00	58.50	56.00	52.75	54.90
Sept. 1	63.25	59.75	57.00	59.50	58.00	54.75	58.00	70.00	60.00	56.75	54.25	56.15
8	64.25	60.75	57.25	60.00	58.25	55.75	58.50	70.00	60.50	57.75	55.25	56.85
15	67.25	63.75	59.25	62.00	59.75	58.25	61.50	71.00	62.50	60.25	58.25	59.15
22	63.25	59.50	58.50	60.00	57.00	55.25	NQ	64.00	NQ	57.00	54.50	56.05
29	62.50	58.50	55.00	60.00	56.50	55.00	NQ	63.00	NQ	57.00	54.25	55.55
Oct. 6	64.25	60.25	57.00	62.50	57.50	56.25	NQ	62.00	NQ	57.75	56.25	56.95
13	66.00	62.00	57.50	63.50	57.50	57.00	NQ	58.25	NQ	58.50	58.00	57.65
20	66.50	62.50	58.25	64.00	57.00	57.50	NQ	59.00	NQ	58.50	58.25	57.90
27	67.00	63.75	57.50	64.25	58.00	58.00	NQ	59.50	NQ	59.50	57.25	58.05
Nov. 3	67.50	64.50	58.50	64.75	58.50	58.75	NQ	58.50	NQ	60.25	57.75	58.40
10	66.50	64.25	58.25	64.50	58.25	59.00	NQ	59.50	NQ	60.25	57.00	58.40
17	66.00	64.00	59.00	64.25	60.50	60.00	NQ	61.25	NQ	60.50	56.75	59.35
24	64.50	63.00	57.50	63.75	59.00	59.25	NQ	61.25	NQ	59.75	56.00	58.30
Dec. 1	66.50	64.75	60.00	65.25	59.00	60.75	NQ	62.00	NQ	60.75	58.50	59.80
8	67.50	66.00	60.75	66.00	60.00	62.00	NQ	64.00	NQ	62.50	60.75	61.20
15	67.50	66.00	61.00	65.50	60.50	62.50	NQ	64.50	NQ	62.75	61.75	61.70
22	67.75	66.50	62.00	66.75	61.00	63.00	NQ	64.00	NQ	63.25	62.50	62.35
Jan. 5	66.25	64.50	61.00	66.75	61.00	62.75	65.50	65.25	61.75	62.50	60.50	61.35
12	70.00	68.00	63.00	69.75	62.25	65.25	68.75	68.50	64.75	65.00	63.50	63.70
19	70.75	68.75	63.50	70.00	63.25	65.25	69.25	69.00	65.25	65.00	63.75	64.15
26	69.50	67.50	63.00	69.50	63.00	64.00	68.00	69.00	63.75	63.75	63.00	63.30
Feb. 2	71.00	69.25	64.50	70.00	63.50	65.50	70.00	68.50	65.00	65.50	64.50	64.60
9	70.25	68.50	63.00	70.00	62.75	64.50	69.50	68.50	62.25	64.50	62.25	62.95
16	69.00	67.25	62.00	69.50	62.00	63.50	68.50	68.50	61.00	63.50	61.25	61.95

1/ The "A" index is an average of the cheapest five types of M 1-3/32" staple length cotton offered on the European market. NQ=no quotes.

Source: Cotton Outlook, Liverpool Cotton Services LTD.



Table 6--C.i.f. Northern Europe price quotations for principal growth of coarse-count cotton

Month & week	Orleans/ Texas	Pakistan	China	Russia	Turkey	Southern Brazil	Argentina	"B" index 1/
U.S. cents/pound								
1988								
Aug. 4	61.75	51.50	NQ	56.25	62.50	NQ	56.50	54.60
11	57.00	52.25	NQ	56.50	62.00	NQ	55.75	54.85
18	54.00	50.00	NQ	54.75	61.00	NQ	52.00	52.00
25	51.25	47.50	NQ	52.75	60.00	NQ	50.00	49.60
Sept. 1	53.00	49.00	NQ	54.00	60.00	NQ	51.00	51.00
8	53.50	50.00	NQ	54.25	60.00	NQ	51.00	51.50
15	56.50	53.00	NQ	56.25	61.00	NQ	53.00	54.10
22	52.00	49.00	NQ	53.50	57.50	NQ	NQ	51.50
29	51.50	48.75	NQ	51.75	56.50	NQ	NQ	50.65
Oct. 6	53.25	50.75	NQ	53.75	56.50	NQ	NQ	52.60
13	54.25	52.50	NQ	54.25	52.50	NQ	NQ	53.10
20	54.75	53.00	NQ	55.00	54.00	NQ	NQ	53.90
27	55.75	52.00	NQ	54.50	53.50	NQ	NQ	53.35
Nov. 3	56.00	52.50	NQ	55.50	52.00	NQ	NQ	53.35
10	55.50	51.75	NQ	55.25	52.75	NQ	NQ	53.25
17	55.75	51.50	NQ	56.00	53.50	NQ	NQ	53.60
24	55.00	50.75	NQ	54.50	53.50	NQ	NQ	52.90
Dec. 1	56.75	53.25	NQ	57.00	54.00	NQ	NQ	54.65
8	57.50	55.50	NQ	57.75	55.50	NQ	NQ	56.15
15	58.25	56.50	NQ	58.00	55.50	NQ	NQ	56.65
22	59.00	57.25	NQ	59.00	55.50	NQ	NQ	57.25
Jan. 5	58.25	55.25	NQ	58.00	55.50	NQ	57.50	56.10
12	60.50	58.25	NQ	59.75	59.75	NQ	60.50	59.25
19	61.00	58.75	NQ	60.25	59.75	NQ	60.75	59.60
26	60.00	58.00	NQ	60.00	59.50	NQ	59.00	58.85
Feb. 2	62.00	58.50	NQ	61.50	59.00	NQ	59.25	58.90
9	61.00	57.00	NQ	60.00	58.50	NQ	57.50	57.65
16	60.25	56.00	NQ	59.00	57.50	NQ	56.00	56.50

1/ The "B" index is based on coarse grades of cotton varying in staple length from 1" to 1-3/32". It is an average of the cheapest three types of seven styles, so marked. NQ=no quotes.

Source: Cotton Outlook, Liverpool Cotton Services LTD.

Table 7--Cotton: Strict low middling spot prices in designated U.S. markets, loan rates, and prices received by farmers for upland cotton, 1983/84-1988/89

Year beginning August 1	Average spot market prices per pound (net weight) 1/						Prices received by farmers (net weight) 2/
	15/16 inch	1 inch	1-1/32 inch	1-1/16 inch	1-3/32 inch	1-1/8 inch	
	Cents/pound						
1983/84	62.54	66.32	70.71	73.11	73.55	75.37	3/ 65.3
1984/85	52.39	55.98	58.30	60.51	60.29	60.49	3/ 58.7
1985/86	52.16	55.81	57.87	60.01	59.62	59.77	3/ 56.8
1986/87	44.80	47.77	50.78	53.16	53.81	55.89	3/ 51.5
1987/88							
August	67.07	70.30	73.37	75.89	76.42	77.95	65.3
September	63.14	66.48	68.82	71.41	71.99	72.72	64.9
October	55.95	59.31	61.65	64.30	64.84	65.36	64.1
November	56.30	59.40	62.16	64.66	65.17	65.90	64.4
December	55.87	58.68	60.05	62.26	62.76	63.39	64.2
January	54.63	55.79	57.44	59.69	60.14	60.96	60.6
February	53.97	54.80	55.65	57.83	58.28	59.06	56.8
March	55.71	56.62	57.46	59.64	60.12	61.40	57.7
April	56.00	57.27	57.88	60.07	60.55	61.19	59.4
May	57.15	58.28	59.36	61.55	62.03	63.06	58.9
June	58.36	59.44	60.67	62.86	63.34	64.61	61.2
July	54.45	55.58	55.19	57.40	57.88	57.80	58.6
Season	57.38	59.33	60.81	63.13	63.63	64.45	63.7
Loan rate 4/	44.55	48.00	49.95	52.25	52.75	52.85	
1988/89							
August	49.97	51.58	52.61	55.20	55.69	56.43	52.6
September	41.53	45.30	47.40	51.25	51.80	52.96	51.8
October	41.60	45.83	48.17	52.20	52.66	54.38	54.2
November	43.05	47.41	49.46	53.40	53.80	54.86	56.5
December	44.89	48.75	50.84	54.80	55.20	56.18	55.3
January	47.41	50.17	51.88	55.67	56.07	57.25	53.9
Loan rate 4/	45.30	48.15	49.65	51.80	52.30	52.45	

1/ Spot market loan rates and prices are for cotton with micronaire readings of 3.5 through 4.9.

2/ Prices do not include an allowance for loans outstanding and Government purchases. 3/ Weighted market average. U.S. prices based on U.S. monthly prices weighted by monthly marketings during the period August through the following July. 4/ SLM 1-1/16" average location.

Source: Agricultural Stabilization and Conservation Service, Agricultural Marketing Service, and National Agricultural Statistics Service.

Table 8--Fiber prices: Landed Group B mill points, cotton prices, and manmade staple fiber prices, f.o.b. producing plants, actual and estimated raw fiber equivalent, 1982 to 1988

Calendar year	Cotton 1/		Rayon 2/		Polyester 3/		Price ratios 4/	
	Actual	Raw fiber equivalent 5/	Actual	Raw fiber equivalent 5/	Actual	Raw fiber equivalent 5/	Cotton/rayon	Cotton/polyester
			Cents/pound				Percent	
1984	76	84	84	88	79	82	.95	1.02
1985	66	73	79	82	66	69	.89	1.06
1986	61	68	76	79	62	65	.86	1.05
1987								
January	65	73	80	83	62	65	.88	1.12
February	62	69	80	83	62	65	.83	1.06
March	63	70	80	83	62	65	.84	1.08
April	66	73	80	83	62	65	.88	1.12
May	75	83	80	83	62	65	1.00	1.28
June	81	90	80	83	64	67	1.08	1.34
July	81	90	80	83	69	72	1.08	1.25
August	84	93	80	83	69	72	1.12	1.29
September	80	89	83	86	69	72	1.03	1.24
October	73	81	83	86	70	73	.94	1.11
November	72	80	83	86	69	72	.93	1.11
December	71	79	83	83	69	72	.93	1.10
Average	73	81	81	84	66	69	.96	1.17
1988								
January	69	77	83	86	69	72	.90	1.07
February	66	73	83	86	69	72	.85	1.01
March	67	74	87	91	72	75	.81	.99
April	68	76	87	91	72	75	.84	1.01
May	69	77	89	93	74	77	.85	1.00
June	71	79	89	93	74	77	.85	1.03
July	66	73	91	95	76	79	.77	.92
August	60	67	91	95	76	79	.71	.85
September	58	64	91	95	76	79	.67	.81
October	60	67	96	100	76	79	.67	.85
November	61	68	96	100	76	79	.68	.86
December	63	70	105	109	76	79	.64	.89
Average	65	72	83	87	74	77	.77	.94
1989								
January	64	71	100	104	81	84	.68	.85

1/ SLM-1-1/16" at Group B mill points, net weight. 2/ 1.5 and 3.0 denier, regular rayon staple. 3/ Reported average market price for 1.5-denier polyester staple for cotton blending. 4/ Raw fiber equivalent. 5/ Actual prices converted to estimated raw fiber equivalent as follows: cotton, divided by 0.90, rayon and polyester, divided by 0.96.

Source: USDA, Agricultural Marketing Service and trade reports.

Table 9--Upland cotton and manmade staple fibers: Mill consumption on cotton-system spinning spindles

Year beginning August 1	Cotton	Manmade		Total	Total fibers	Cotton's share of fibers
		Rayon and acetate	Non-cellulosic			
			1,000 pounds			Percent
1983/84	2,791,905	259,441	1,594,668	1,854,109	4,646,014	60.1
1984/85	2,618,685	231,197	1,336,595	1,567,792	4,186,477	62.6
1985/86	3,086,842	253,459	1,465,228	1,718,687	4,805,529	64.2
1986/87						
August	276,770	21,453	116,348	137,801	404,183	65.9
September	261,122	20,479	116,978	137,457	398,579	65.5
October	340,287	27,216	148,697	175,913	516,200	65.9
November	263,464	22,422	116,704	139,126	402,590	65.4
December	287,383	21,089	124,745	145,834	433,217	66.3
January	272,040	20,829	111,041	131,870	403,910	67.4
February	278,811	19,017	115,407	134,424	413,235	67.5
March	356,721	24,936	147,977	172,913	538,634	67.9
April	284,897	19,225	116,906	136,131	421,028	67.6
May	291,180	18,961	116,363	135,324	426,504	68.3
June	354,011	23,796	142,649	166,445	520,456	68.0
July	269,166	17,348	108,007	125,355	394,521	68.2
Season	3,544,852	256,711	1,481,822	1,738,593	5,283,445	67.1
1987/88						
August	302,388	20,768	118,130	138,898	441,286	68.5
September	375,691	25,497	145,385	170,882	546,573	68.7
October	309,556	21,219	125,084	146,303	455,859	67.9
November	302,378	21,311	120,124	141,435	443,813	68.1
December	304,295	24,375	121,521	145,896	450,191	67.6
January	283,354	19,748	119,056	138,804	422,158	67.1
February	293,937	21,066	116,977	138,043	431,980	68.0
March	366,159	26,421	147,427	173,848	540,007	67.8
April	276,738	22,231	113,340	135,571	412,309	67.2
May	273,904	20,457	113,977	134,434	408,338	67.1
June	328,733	27,654	141,683	169,337	498,070	66.0
July	214,264	18,066	99,219	117,285	331,549	68.3
Season	3,631,397	268,813	1,481,923	1,750,736	5,382,133	67.7
1988/89 1/						
August	278,411	22,571	117,117	139,688	418,099	66.6
September	334,445	28,218	141,771	169,989	504,434	66.3
October	266,339	23,050	111,980	135,030	401,369	66.4
November	251,815	22,207	106,930	129,137	380,952	66.1
December	273,513	24,663	115,420	140,083	413,596	66.1
January	272,268	23,203	109,131	132,334	404,602	67.3

1/ Preliminary.

Source: Bureau of the Census.

Table 10.--Cotton and manmade fibers: Daily rate of mill consumption on cotton-system spinning spindles, unadjusted and seasonally adjusted

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
UPLAND COTTON												
480-lb. bales												
Unadjusted												
1984/85	22,204	21,125	22,168	20,205	17,571	20,732	21,731	21,599	21,785	22,792	21,818	19,187
1985/86	23,765	23,334	25,556	24,752	20,186	24,724	25,851	25,570	25,775	25,689	25,371	21,644
1986/87	27,748	27,200	28,357	27,444	23,949	28,338	29,043	30,381	29,676	30,331	29,501	28,038
1987/88	31,498	31,307	32,246	31,735	25,358	29,516	30,618	30,515	28,826	28,532	27,394	22,462
1988/89	29,001	27,870	27,743	26,232	22,793	28,361	1/					
Adjusted												
1984/85	21,536	20,899	20,718	19,848	20,338	20,608	20,755	20,768	21,274	21,811	22,038	22,389
1985/86	22,873	23,102	23,684	24,458	23,554	24,650	24,714	24,681	25,196	24,513	25,627	25,197
1986/87	26,604	26,931	26,232	26,905	28,208	28,197	27,819	29,439	29,010	29,053	29,773	32,717
1987/88	29,998	30,844	30,109	31,235	29,486	29,281	29,441	29,426	28,206	27,461	27,811	26,210
1988/89	27,620	27,297	25,953	25,819	26,815	28,248	1/					
MANMADE STAPLE												
1,000 pounds												
Rayon and acetate												
Unadjusted												
1984/85	974	980	1,021	872	741	844	881	899	812	932	894	830
1985/86	957	931	1,078	1,028	819	974	978	900	948	1,003	974	931
1986/87	1,073	1,024	1,089	1,121	844	1,041	951	997	961	948	952	867
1987/88	1,038	1,020	1,061	1,066	975	987	1,053	1,057	1,092	1,023	1,106	903
1988/89	1,129	1,129	1,153	1,110	987	1,160	1/					
Adjusted												
1984/85	963	977	961	822	864	845	851	852	806	881	861	1,016
1985/86	946	927	1,017	971	957	976	945	853	940	948	936	1,141
1986/87	1,051	1,019	1,008	1,074	987	1,046	914	963	955	902	923	1,035
1987/88	1,010	1,015	984	1,003	1,144	977	1,033	1,026	1,090	998	1,110	1,011
1988/89	1,098	1,109	1,061	1,044	1,165	1,152	1/					
Noncellulosic 2/												
Unadjusted												
1984/85	5,678	5,438	5,605	4,939	4,267	5,050	5,392	5,159	5,237	5,275	5,233	4,532
1985/86	5,369	5,498	5,915	5,868	4,805	5,565	5,951	5,719	5,679	5,721	5,582	4,962
1986/87	5,817	5,849	5,948	5,835	4,990	5,552	5,770	5,919	5,845	5,818	5,706	5,400
1987/88	5,907	5,815	6,254	6,006	4,861	5,953	5,849	5,897	5,789	5,699	5,667	4,961
1988/89	5,856	5,671	5,599	5,437	4,617	5,457	1/					
Adjusted												
1984/85	5,518	5,389	5,288	4,984	4,979	4,985	5,049	4,946	5,124	5,126	5,161	5,245
1985/86	5,208	5,444	5,580	5,933	5,613	5,494	5,567	5,483	5,557	5,554	5,500	5,743
1986/87	5,664	5,763	5,569	5,847	5,809	5,508	5,418	5,724	5,742	5,654	5,655	6,200
1987/88	5,757	5,690	5,878	5,935	5,626	5,983	5,508	5,725	5,457	5,555	5,644	5,644
1988/89	5,708	5,554	5,218	5,284	5,375	5,485	1/					

1/ Preliminary. 2/ Includes nylon, acrylic and modacrylic, polyester, and other manmade staple fibers.

Source: Bureau of the Census.

Table 11--Cotton system spindles in place and active, and hours operated

Date	Spindles		Percentage of active spindles used on			Daily average spindle hours operated		Total fiber spun per spindle hour
	In place	Active	100-percent cotton	100-percent manmade	Other fibers and blends	Actual	Seasonally adjusted	
	-----1,000-----		-----Percent-----			Spindle hours		Pounds
1986								
January	13,490	12,476	37.4	13.7	48.9	305	301	.061
February	13,609	12,507	35.8	13.8	50.4	325	310	.060
March	13,512	12,211	36.1	13.9	50.0	312	301	.061
April	13,551	12,347	36.4	13.7	49.9	311	302	.061
May	13,452	12,310	36.9	13.7	49.4	319	306	.061
June	13,261	11,778	38.0	14.2	47.8	307	301	.061
July	13,240	11,911	37.7	14.0	48.3	269	314	.061
August	13,109	11,779	38.6	15.0	46.4	314	304	.065
September	13,151	11,888	38.4	14.2	47.4	320	322	.063
October	13,140	11,721	38.4	14.3	47.3	325	304	.064
November	13,110	11,828	39.2	14.0	46.8	319	316	.064
December	13,289	11,807	39.7	13.8	46.5	279	326	.062
1987								
January	13,044	11,880	39.8	13.7	46.5	321	316	.063
February	13,068	11,880	39.8	13.8	46.4	342	320	.061
March	12,914	11,936	39.8	13.8	46.4	343	332	.063
April	12,858	11,832	40.2	13.6	46.2	331	323	.064
May	12,892	11,867	40.4	13.8	45.7	323	310	.066
June	12,814	11,671	39.7	13.9	46.3	310	311	.067
July	12,819	11,723	39.3	13.4	47.3	292	341	.068
August	12,749	11,760	40.0	13.3	46.6	322	314	.069
September	12,831	11,776	40.9	13.1	46.0	318	317	.069
October	12,792	11,696	40.3	13.5	46.2	335	316	.068
November	12,804	11,648	39.9	13.4	46.7	328	326	.068
December	12,636	11,638	39.7	13.4	46.9	272	316	.067
1988								
January	12,712	11,607	39.6	13.7	46.7	308	305	.069
February	12,621	11,515	39.8	13.8	46.4	319	298	.068
March	12,708	11,733	40.0	14.0	46.0	321	307	.068
April	12,684	11,741	39.9	13.8	46.3	334	325	.062
May	12,566	11,724	39.7	14.4	45.9	324	314	.063
June	12,508	11,674	39.5	14.6	45.9	313	315	.064
July	12,578	11,737	38.9	14.9	46.2	252	291	.066
August	12,286	11,635	39.5	14.1	46.4	299	292	.070
September	12,287	11,599	39.4	13.8	46.8	301	300	.068
October	12,190	11,478	37.9	14.0	48.1	299	283	.068
November	12,216	11,406	38.1	13.5	48.4	300	298	.064
December	12,402	11,537	38.2	13.3	48.5	251	290	.066
1989								
January	12,357	11,482	37.9	13.6	48.5	292	290	.070

Source: Bureau of the Census.

Table 12--Mill consumption of cotton, wool, and manmade fibers, quarterly, 1984-88

Year	Cotton	Wool	Million pounds		Total manmade	Total fiber	Cotton's share of total fiber
			Cellulosic	Noncellulosic			
							Percent
1984 1Q	738.2	40.1	159.8	1,873.1	2,032.9	2,811.2	26.3
2Q	695.4	40.2	152.7	1,906.6	2,059.3	2,794.9	24.9
3Q	648.8	32.0	143.3	1,785.9	1,929.2	2,610.0	24.9
4Q	633.7	29.8	132.1	1,812.6	1,944.7	2,608.2	25.0
Total	2,716.1	142.1	587.9	7,378.2	7,966.1	10,824.3	25.1
1985 1Q	662.3	29.9	127.0	1,818.7	1,945.7	2,637.9	25.1
2Q	695.6	30.4	132.5	1,934.4	2,066.9	2,792.9	24.9
3Q	711.4	27.9	138.2	1,956.7	2,094.9	2,834.2	25.1
4Q	744.1	28.4	147.9	1,970.1	2,118.0	2,890.5	25.1
Total	2,813.4	116.6	545.6	7,679.9	8,225.5	11,155.5	25.2
1986 1Q	786.3	35.0	150.8	1,944.4	2,095.2	2,916.5	27.0
2Q	810.6	36.0	153.5	1,976.1	2,129.6	2,976.2	27.2
3Q	809.7	32.9	153.6	2,049.1	2,202.7	3,045.6	26.6
4Q	849.7	32.8	150.4	2,074.1	2,224.5	3,107.0	27.3
Total	3,256.3	136.7	608.3	8,043.7	8,652.0	12,045.0	27.0
1987 1Q	904.4	36.6	140.2	2,090.8	2,231.0	3,172.0	28.5
2Q	939.9	37.5	143.2	2,147.7	2,290.9	3,268.3	28.8
3Q	967.5	33.8	146.2	2,129.8	2,276.0	3,277.3	29.5
4Q	971.9	34.9	156.0	2,094.0	2,250.0	3,256.8	29.8
Total	3,783.7	142.8	585.6	8,462.3	9,047.9	12,974.4	29.2
1988 1Q	948.2	38.3	152.9	2,105.6	2,258.5	3,245.0	29.2
2Q	885.0	37.2	159.8	2,156.4	2,316.2	3,238.4	27.3
3Q	849.8	34.5	152.5	2,112.9	2,265.4	3,149.7	27.0
4Q 1/	798.9	34.2	148.9	2,225.9	2,374.8	3,207.9	24.9
Total	3,481.9	144.2	614.1	8,600.8	9,214.9	12,841.0	27.1

1/ Preliminary.

Source: Bureau of the Census and Textile Organon.

Table 13--U.S. fiber consumption: Total and per capita, by type of fiber

Year and fiber	U.S. mill use	Percent of fibers	Textile trade 1/		Total domestic consumption 2/	Percent of fibers	Per capita 3/	
			Exports	Imports			Mill use	Domestic consumption
	Million pounds	Percent	-----Million pounds-----			Percent	-----Pounds-----	
<b>COTTON</b>								
1984	2,716.1	25.1	206.1	1,465.5	3,975.5	30.2	11.5	16.8
1985	2,813.4	25.2	213.2	1,629.2	4,229.4	30.5	11.8	17.7
1986	3,256.3	27.0	274.8	1,910.5	4,892.0	31.0	13.5	20.2
1987	3,783.7	29.2	298.0	2,335.7	5,821.4	33.9	15.5	23.9
1988 5/	3,481.9	27.1	325.3	2,121.7	5,278.3	31.9	14.1	21.4
<b>WOOL</b>								
1984	142.1	1.3	12.0	210.2	340.2	2.6	0.6	1.4
1985	116.6	1.0	17.8	264.8	363.6	2.6	0.5	1.5
1986	136.7	1.2	16.0	275.6	396.3	2.5	0.6	1.6
1987	142.8	1.1	23.5	276.1	395.4	2.3	0.6	1.6
1988 5/	144.2	1.1	30.7	248.7	362.2	2.2	0.6	1.5
<b>MANMADE FIBERS</b>								
1984	7,966.1	73.5	487.9	1,342.6	8,820.8	67.1	33.6	37.2
1985	8,225.5	73.8	449.2	1,491.0	9,267.3	66.8	34.3	38.7
1986	8,652.0	71.8	519.3	1,703.0	9,835.7	62.4	35.8	40.7
1987	9,047.9	69.7	591.9	1,805.4	10,261.4	59.7	37.1	42.1
1988 5/	9,214.9	71.7	681.6	1,758.9	10,292.2	62.2	37.4	41.8
<b>FLAX AND SILK</b>								
1984	7.9	0.1	---	---	7.9	0.1	4/	4/
1985	5.1	4/	---	---	5.1	4/	4/	4/
1986	4.8	4/	---	632.2	637.0	4.1	4/	2.6
1987	4.7	4/	---	702.7	707.4	4.1	4/	2.9
1988 5/	5.2 5/	4/	---	607.5	612.7	3.7	4/	2.5
<b>ALL FIBERS 6/</b>								
1984	10,832.2	100.0	706.0	3,018.3	13,144.4	100.0	45.7	55.4
1985	11,160.6	100.0	680.2	3,385.0	13,865.4	100.0	46.6	57.9
1986	12,049.8	100.0	810.1	4,521.3	15,761.0	100.0	49.9	65.3
1987	12,979.1	100.0	913.4	5,119.9	17,185.6	100.0	53.2	70.5
1988	12,846.2	100.0	1,037.6	4,736.8	16,545.4	100.0	52.2	67.2

1/ Raw fiber equivalent of imports and exports of textile products. 2/ Total domestic consumption is U.S. mill consumption plus net textile product trade balance. 3/ July 1 population for 1984=237.0 million, 1985=239.3 million, 1986=241.6 million, 1987=243.9 million, and 1988=246.1. 4/ Less than 0.05 pounds or 0.1 percent. 5/ Estimated. 6/ Includes flax and silk.

Source: Bureau of the Census.



Table 14--Manmade fiber production and capacity, 1987-90 1/

Fiber	1987					1988					1989					Planned 1990 capacity	Average annual change, 1988-90
	1q	2q	3q	4q	Year	1q	2q	3q	4q	Year	1q	2q	3q	4q	Year		
	Million pounds															Percent	
GRAND TOTAL ALL FIBERS 3/																	
Capacity	2,476	2,468	2,494	2,524	9,962	2,528	2,534	2,558	2,585	10,205	2,597	2,611	2,611	2,619	10,438	10,416	1.0
Production	2,182	2,275	2,228	2,260	8,945	2,236	2,318	2,237	2,312	9,103							
Percent	88	92	89	90	90	88	91	87	89	89							
TOTAL STAPLE																	
Capacity	1,279	1,277	1,295	1,315	5,166	1,315	1,315	1,323	1,331	5,283	1,337	1,346	1,346	1,351	5,380	5,263	-0.2
Production	1,171	1,209	1,163	1,178	4,721	1,169	1,202	1,158	1,214	4,743							
Percent	92	95	90	90	91	88	91	87	91	89							
TOTAL FILAMENT 3/																	
Capacity	1,197	1,191	1,199	1,209	4,796	1,213	1,219	1,235	1,255	4,922	1,260	1,265	1,265	1,268	5,058	5,153	2.3
Production	1,011	1,066	1,065	1,082	4,224	1,067	1,116	1,079	1,098	4,360							
Percent	84	90	88	90	88	87	91	87	87	88							
POLYESTER TOTAL																	
Capacity	966	954	959	962	3,841	965	967	978	990	3,900	992	993	983	976	3,944	3,734	-2.1
Production	869	899	873	900	3,541	872	933	908	966	3,679							
Percent	90	94	91	94	92	91	96	93	98	94							
STAPLE																	
Capacity	618	613	622	630	2,483	633	636	641	646	2,556	652	658	657	658	2,625	2,456	-2.0
Production	581	596	579	606	2,362	587	619	605	640	2,451							
Percent	94	97	94	96	95	93	97	94	99	96							
FILAMENT																	
Capacity	348	341	337	332	1,358	332	331	337	344	1,344	340	335	326	318	1,319	1,278	-2.5
Production	288	303	294	294	1,179	285	314	304	326	1,229							
Percent	83	89	87	89	87	86	95	90	95	91							
NYLON TOTAL																	
Capacity	728	739	740	741	2,948	743	744	751	758	2,996	766	773	779	786	3,104	3,163	2.8
Production	661	688	686	654	2,689	663	676	655	671	2,665							
Percent	91	94	93	88	91	89	91	87	89	89							
STAPLE																	
Capacity	272	276	280	284	1,112	284	283	284	284	1,135	285	286	286	287	1,144	1,151	0.7
Production	247	261	253	231	992	231	236	227	245	939							
Percent	91	95	90	81	89	82	83	80	86	83							
FILAMENT																	
Capacity	456	463	460	457	1,836	459	461	467	474	1,861	481	487	493	499	1,960	2,012	3.9
Production	414	427	433	423	1,697	432	440	429	427	1,728							
Percent	91	93	95	93	93	94	95	92	90	93							
OLEFIN TOTAL																	
Capacity	437	428	449	472	1,786	474	478	484	490	1,926	493	496	500	504	1,993	2,110	4.8
Production	342	376	379	398	1,495	396	403	378	378	1,555							
Percent	77	84	83	85	82	83	84	78	77	81							
STAPLE																	
Capacity	112	110	115	121	458	120	120	121	122	483	122	122	122	122	488	521	3.9
Production	86	92	92	91	361	94	95	86	89	364							
Percent	77	84	81	75	79	78	79	71	73	75							
FILAMENT																	
Capacity	325	318	334	351	1,328	354	358	363	368	1,443	371	374	378	382	1,505	1,589	5.0
Production	256	284	287	307	1,134	302	309	292	289	1,192							
Percent	77	85	84	88	83	85	86	80	79	83							
ACRYLIC STAPLE																	
Capacity	161	162	162	163	648	161	159	160	161	641	160	161	160	161	642	642	---
Production	156	159	135	142	592	149	151	141	147	588							
Percent	97	98	83	87	91	93	95	88	91	92							
OTHER FIBERS 2/																	
Capacity	7	8	7	8	30	7	8	7	8	30	7	8	7	8	30	30	---
Production	5	6	5	6	22	7	7	7	7	28							
Percent	71	75	71	75	73	100	88	100	88	93							
NONCELLULOSIC TOTAL 3/																	
Capacity	2,299	2,291	2,317	2,346	9,253	2,350	2,356	2,380	2,407	9,493	2,418	2,431	2,429	2,435	9,713	9,679	1.0
Production	2,035	2,127	2,079	2,099	8,340	2,080	2,163	2,083	2,163	8,489							
Percent	88	92	89	90	90	89	92	88	90	89							
STAPLE																	
Capacity	1,163	1,161	1,179	1,198	4,701	1,198	1,198	1,206	1,213	4,815	1,219	1,227	1,225	1,228	4,899	4,770	-0.5
Production	1,070	1,108	1,059	1,070	4,307	1,062	1,101	1,059	1,121	4,343							
Percent	92	95	90	89	92	89	92	88	92	90							
FILAMENT 3/																	
Capacity	1,136	1,130	1,138	1,148	4,552	1,152	1,158	1,174	1,194	4,678	1,199	1,204	1,204	1,207	4,814	4,909	2.4
Production	965	1,019	1,020	1,029	4,033	1,018	1,062	1,024	1,042	4,146							
Percent	85	89	89	90	88	89	92	88	87	89							
CELLULOSIC STAPLE																	
Capacity	116	116	116	117	465	117	117	117	118	468	118	119	121	123	481	493	2.6
Production	101	101	104	108	414	107	101	99	93	400							
Percent	87	87	90	92	89	91	86	84	78	85							
CELLULOSIC FILAMENT																	
Capacity	61	61	61	61	244	61	61	61	61	244	61	61	61	61	244	244	---
Production	46	47	45	53	191	49	54	55	56	214							
Percent	75	77	74	87	78	80	89	90	92	88							

1/ Capacity data as of November 1988. 2/ Includes saran and spandex. USDA estimates. 3/ Glass fibers are not included.

Source: Compiled from Textile Organon.

Table 15--Domestic shipments of manmade fibers by major category, 1985-88 1/

Fiber type	1985				1986				1987				1988				
	1 q	2 q	3 q	4 q	1 q	2 q	3 q	4 q	1 q	2 q	3 q	4 q	1 q	2 q	3 q	4 q 2/	
Million pounds																	
Woven products:																	
Total	498.4	513.5	519.5	542.3	534.4	533.6	536.7	535.4	524.7	563.2	559.1	586.3	559.8	569.7	564.9	NA	
Polyester	320.7	326.9	327.3	335.0	326.2	319.0	319.8	312.7	314.4	334.0	316.2	329.8	317.5	328.7	319.1	NA	
Rayon	39.0	39.4	44.6	51.9	53.9	53.2	55.1	55.8	52.9	55.2	59.9	62.7	58.7	60.5	63.5	NA	
Olefin	64.8	71.0	65.5	66.5	66.9	76.2	78.6	85.3	77.8	85.4	90.4	102.0	94.2	92.3	90.5	NA	
Nylon	36.1	32.2	34.8	36.8	38.2	38.0	35.1	35.8	37.1	39.0	43.1	41.0	40.1	36.7	38.1	NA	
Acetate	22.9	27.0	29.3	33.6	32.8	32.1	32.0	31.4	26.7	32.1	31.8	34.4	32.5	36.3	36.9	NA	
Acrylic	14.9	17.0	18.0	18.5	16.4	15.1	16.1	14.4	15.8	17.5	17.7	16.4	16.8	15.2	16.8	NA	
Knit products:																	
Total	296.6	330.1	338.1	331.0	345.8	364.3	357.2	355.4	368.6	375.0	339.8	331.3	327.1	343.4	326.7	NA	
Polyester	137.9	163.1	171.5	165.8	167.8	165.5	171.5	183.0	181.5	196.2	182.5	190.9	173.2	183.8	175.0	NA	
Nylon	65.2	62.2	64.4	65.7	68.3	65.1	60.0	59.4	63.7	63.5	63.5	60.9	61.8	64.7	64.1	NA	
Acrylic	76.1	87.2	86.6	86.4	95.9	117.7	111.6	99.9	112.7	105.2	87.5	72.1	85.3	86.3	80.6	NA	
Acetate	15.9	15.8	12.8	11.1	12.0	14.3	12.3	11.2	9.1	8.4	5.2	6.3	5.9	7.9	5.9	NA	
Rayon	1.5	1.8	2.8	2.0	1.8	1.7	1.8	2.0	1.6	1.7	1.1	1.1	0.9	0.7	1.1	NA	
Carpets:																	
Total	525.0	606.7	626.0	623.0	582.7	623.9	694.7	700.3	686.3	722.0	732.8	675.0	722.8	729.2	733.0	NA	
Nylon	340.4	397.5	423.0	428.4	387.1	406.4	476.4	449.3	458.7	474.7	476.7	411.0	452.5	443.6	467.6	3/ 46.0 3/	
Olefin	153.8	175.2	172.6	162.5	164.2	178.9	181.9	212.5	180.8	196.6	204.7	203.9	203.3	216.3	203.5	NA	
Polyester	30.7	33.9	30.3	31.9	31.3	38.4	36.9	38.4	46.8	50.7	51.4	60.1	66.1	69.0	62.3	63.9	
Rayon	0.1	0.1	0.1	0.2	0.1	0.2	--	0.1	--	--	--	--	0.2	0.1	--	NA	

1/ Filament plus staple. 2/ Data only available for carpets: nylon and polyester. 3/ USDA estimate. -- = figures not available.

Source: Textile Organon.

Table 16--Raw cotton equivalent of U.S. textile imports, 1983-88

Year and month	Yarn, thread, and broad-woven fabric					Primarily manufactured products										Grand total imports 9/	
	Yarn	Sewing thread, crochet, knitting yarn	Broad-woven fabric, 100 percent cotton	Blends 1/	Total	Pile fabrics and mfrs. 2/	Table damask and mfrs. 3/	Bed clothes and towels 3/	Gloves, hosiery, and hdkf. 4/	Other wearing apparel 4/	Lace fabric articles 5/	Household and clothing articles 6/	Misc. products 7/	Floor covering 8/	Knit fabric 8/		Total
1,000 pounds																	
1985	53,818	2,588	341,896	93,569	491,874	17,916	515	127,494	30,052	865,476	10,372	19,681	46,197	17,984	1,608	1,137,294	1,629,166
1986	103,249	2,672	431,289	97,468	634,678	19,576	822	133,637	27,054	988,906	6,787	30,095	46,410	18,389	4,123	1,275,799	1,910,477
1987	131,969	2,512	559,245	82,529	776,258	20,153	1,077	152,745	31,591	1,234,040	7,113	30,758	53,153	20,657	8,150	1,559,438	2,335,692
1988																	
Jan.	10,748	208	29,636	6,761	47,353	1,900	83	13,948	4,197	120,630	814	2,807	5,745	2,321	1,511	153,955	201,309
Feb.	8,389	224	33,381	7,246	49,241	1,761	98	14,634	3,631	112,999	633	3,097	5,798	2,237	868	145,755	194,996
Mar.	8,442	505	36,290	6,431	51,668	2,045	57	14,537	3,313	93,429	808	3,020	4,790	2,242	884	125,125	176,793
Apr.	7,058	155	33,774	6,362	47,350	1,901	147	13,413	2,114	79,621	744	2,413	3,913	1,931	755	106,953	156,301
May	7,953	129	29,376	5,915	43,373	2,044	79	13,224	2,364	90,381	740	2,656	3,823	1,568	780	117,659	161,032
June	6,296	115	30,301	5,211	41,922	2,145	146	13,264	2,209	116,725	654	3,014	4,521	1,509	1,149	145,335	187,259
July	6,093	186	29,074	5,914	41,267	1,799	62	12,291	3,237	113,034	767	2,896	3,141	1,847	848	139,921	181,189
Aug.	7,342	158	30,531	5,947	43,971	2,105	110	15,262	3,135	110,495	1,099	4,303	4,107	1,914	652	143,183	187,154
Sept.	7,473	168	28,527	5,687	41,854	1,634	122	12,217	2,751	93,966	739	2,983	2,884	1,411	809	119,514	161,371
Oct.	6,907	176	31,078	6,433	44,594	1,573	34	12,863	2,856	98,365	974	2,566	3,758	1,469	839	125,297	169,891
Nov.	7,895	91	29,874	7,483	45,343	1,842	98	13,096	3,154	96,001	985	2,467	4,227	1,421	935	124,215	169,559
Dec.	8,593	246	35,340	8,336	52,515	1,552	78	13,144	2,801	93,155	798	2,239	4,889	1,362	1,388	121,405	173,921
Total	93,189	2,361	377,182	77,720	550,451	22,301	1,104	161,893	35,762	1,218,801	9,755	34,461	51,596	21,232	11,418	1,568,317	2,118,775

1/ Includes tapestry and upholstery fabrics, tire cord fabrics, and clothes in chief value cotton containing other fibers. 2/ Includes velvets and velveteens, corduroys, plushes and chenilles, and manufactures of pile fabrics. 3/ Includes blankets, quilts, bedspreads, sheets, and pillow cases. 4/ Includes knit and woven underwear and outerwear (collars and cuffs, shirts, coats, vests, robes, pajamas, and ornamented wearing apparel). 5/ Includes nets and nettings, veils and veillings, edging, embroideries, narrow fabrics, and lace window curtains. 6/ Includes braids (except hat braids), tubing, labels, lacing, wicking, loom harness, table and bureau covers, polishing and dust cloths, fabric with fast edges, cords and tassels, garters, suspenders and braces, corsets, and brassieres, etc. 7/ Includes belts and belting; fish nets and netting; and coated, filled, or waterproof fabrics. 8/ Included in miscellaneous product before 1985. 9/ Includes quantities in the TSUSA 706 luggage categories. The raw fiber equivalent quantity for January-December 1983, was 14,091 thousand pounds; January-December 1984, 18,749 thousand pounds; January-December 1985, 25,032 thousand pounds; and January-December 1986, 30,236 thousand pounds.

Source: Bureau of the Census.

Table 17--Raw cotton equivalent of U.S. textile exports, 1983-88

Year and month	Semimanufactured					Manufactured products										Grand Total exports	
	Yarn	Sewing thread, crocheting, darning, and embroidery cotton yarn	Twine and cordage	Broad-woven fabric standard constructions 1/	Other broad-woven fabric 2/	Total	Knit fabric	Blankets, spreads, pillow cases, and sheets	Towels	Household 3/	Wearing apparel Knit 4/	Other than knit 5/	Other household and clothing articles 6/	Industrial products 7/	Floor covering		Total
1,000 pounds																	
1985	16,843	8,466	528	74,919	5,134	105,892	2,235	9,802	3,582	492	25,326	30,158	11,037	16,541	8,155	107,332	213,224
1986	9,892	6,049	628	118,154	6,202	140,925	2,091	8,192	4,515	612	27,413	46,437	13,860	20,992	9,793	133,904	274,828
1987	13,491	5,207	927	99,536	5,643	124,803	2,144	8,516	6,224	905	47,823	60,584	13,189	21,673	12,142	173,200	298,004
1988 8/																	
Jan.	966	142	36	7,318	424	8,886	168	536	452	53	3,804	4,857	1,273	1,665	952	13,760	22,646
Feb.	1,554	154	113	6,353	505	8,679	124	774	355	51	4,930	4,564	1,069	1,915	1,427	15,209	23,888
Mar.	2,497	179	151	8,174	457	11,458	321	1,029	722	80	5,326	6,693	1,230	2,406	1,420	19,226	30,685
Apr.	1,751	210	105	7,349	391	9,807	178	569	464	178	4,789	5,882	1,854	2,321	1,430	17,666	27,471
May	1,295	268	90	7,073	524	9,249	457	1,042	765	246	4,605	5,837	999	2,392	1,413	17,756	27,006
June	1,705	200	168	7,220	510	9,804	354	887	605	97	4,022	5,193	1,534	2,529	1,848	17,089	26,892
July	1,681	416	64	5,527	378	8,065	234	816	410	51	4,312	5,025	1,052	1,986	1,733	15,619	23,685
Aug.	2,051	380	127	6,358	346	9,262	299	1,056	436	101	4,567	5,524	986	1,178	1,805	16,954	26,214
Sept.	2,844	313	75	8,073	509	12,013	435	982	1,032	63	4,442	6,363	1,855	2,514	2,243	19,929	31,943
Oct.	2,176	342	53	6,834	447	9,852	208	930	833	122	4,820	5,897	1,350	2,423	2,276	18,859	28,711
Nov.	2,068	305	31	7,882	637	10,924	408	783	879	75	4,992	5,479	1,117	2,589	1,777	18,104	29,025
Dec.	2,090	282	78	9,103	619	12,171	512	1,155	1,139	75	4,445	6,786	1,287	2,465	2,064	19,930	32,100
Total	22,678	3,391	1,091	87,264	5,747	120,170	3,698	10,559	8,092	1,195	55,054	68,100	15,626	27,383	20,388	210,101	330,266

1/ Includes fabrics, tire cord and cloth for export to the Philippines to be embroidered and otherwise manufactured and returned to the United States. 2/ Includes tapestry and upholstery fabrics, table damask, pile fabrics, and remnants. 3/ Includes curtains and draperies, house furnishings not elsewhere specified. 4/ Includes gloves and mitts of woven fabric. 5/ Includes underwear and outerwear of woven fabric, handkerchiefs, and wearing apparel containing mixed fibers (corsets, brassieres, girdles, garters, armbands and suspenders, neckties and cravats). 6/ Includes canvas articles and manufactures, braids and narrow fabrics, elastic webbing, waterproof webbing, waterproof garments, and laces and lace articles. 7/ Includes rubberized fabrics, bags, and industrial belt and belting. 8/ Some categories revised.

Source: Bureau of the Census.

Table 18--Raw manmade fiber equivalent of U.S. textile imports, 1983-88

Year and month	Tops, yarn, thread, and woven fabric						Primarily manufactured product								Grand total imports		
	Sliver tops, and roving	Yarns thrown or plied 1/	Yarns spun	Sewing thread and hand-work yarns	Rayon tire fabric including cord fabrics	Broad-woven fabric	Total	Wearing apparel Knit 2/	Not knit	Handkerchiefs	Laces and lace articles 3/	Narrow fabric 4/	Knit fabric	Floor covering		Other manufactures 5/	Total
1,000 pounds																	
1985	2,057	23,675	45,541	9,670	915	186,198	268,057	341,372	458,731	463	9,133	18,449	9,700	43,012	342,110	1,222,970	1,491,026
1986	3,424	23,599	64,540	4,730	2,676	207,180	306,147	431,179	498,179	408	7,850	25,308	12,496	50,682	370,701	1,396,808	1,702,952
1987	5,793	13,727	63,516	8,850	5,599	182,515	279,998	485,359	547,865	439	8,685	14,636	14,569	47,767	406,122	1,525,442	1,805,442
1988																	
Jan.	279	1,379	4,330	611	995	14,626	22,220	28,538	53,857	27	639	1,034	1,389	3,492	30,784	119,761	141,980
Feb.	296	884	3,213	890	1,087	12,492	18,861	26,865	49,177	57	693	1,105	497	3,858	33,900	116,152	135,014
Mar.	362	1,003	3,319	550	1,067	14,929	21,231	23,633	40,962	55	637	996	771	4,383	32,811	104,248	125,478
Apr.	546	912	3,114	597	1,068	15,871	22,108	25,709	37,627	31	724	1,414	1,774	4,208	29,621	101,109	123,216
May	243	1,123	3,858	675	969	16,535	23,403	38,502	44,739	53	926	1,328	952	5,014	33,850	125,365	148,767
June	190	839	4,161	800	788	17,950	24,728	50,584	52,656	47	986	1,268	756	4,373	35,917	146,588	171,315
July	370	957	4,288	642	768	15,980	23,005	52,368	52,440	71	1,215	1,405	771	4,105	34,527	146,900	169,907
Aug.	410	1,124	3,212	566	913	16,432	22,657	53,639	53,295	97	1,365	1,433	758	4,247	36,875	151,709	174,366
Sept.	64	969	3,459	660	938	12,644	18,734	43,299	43,956	37	1,213	1,325	674	3,953	32,841	127,296	146,032
Oct.	166	1,238	3,516	506	1,106	15,665	22,197	40,444	41,415	45	848	1,154	1,057	4,775	32,294	122,032	144,229
Nov.	561	928	3,512	634	1,161	13,641	20,437	32,718	38,904	37	637	1,252	675	4,533	32,833	111,589	132,026
Dec.	566	907	3,441	627	594	12,469	18,603	26,732	38,975	30	483	1,196	1,398	3,802	32,150	104,766	123,370
Total	4,053	12,263	43,423	7,758	11,454	179,234	258,184	443,031	548,003	587	10,366	14,910	11,472	50,743	398,403	1,477,515	1,735,700

1/ Not included in these data are quantities of imported textured noncellulosic yarn not over 20 turns per inch. 2/ Includes gloves, hosiery, underwear, outerwear, and hats. 3/ Includes veils and veillings, nets and nettings, lace window curtains, edging, insertings, flouncings, allovers, etc., embroideries, and ornamented wearing apparel. 4/ Includes braids (except hat braids), fabrics with fast edges not over 12 inches wide, garters, suspenders, braces, tubing cords, tassels, gill nets, webs, seines, and other nets for fishing. 5/ Not elsewhere classified. 6/ Includes quantities in the TSUSA 706 luggage categories. The raw fiber equivalent quantity for January-December 1983 was 180,553 thousand pounds; January-December 1984, 228,002 thousand pounds; January-December 1985, 157,422 thousand pounds; and January-December 1986, 169,369 thousand pounds.

Source: Bureau of the Census.

Table 19--Raw manmade fiber equivalent of U.S. textile exports, 1983-88

Year and month	Tops, yarn, thread, and woven fabric					Primarily manufactured products										Grand total exports
	Sliver tops, and roving 1/	Yarns spun	Sewing thread and handwork yarns	Tire cord and tire cord fabric	Broad-woven fabric 2/	Total	Hosiery	Underwear and night-wear	Outer wear	House furnishings	Knit or crocheted fabric	Narrow fabric 3/	Floor covering	Other manufactures 4/	Total	
1,000 pounds																
1985	8,543	37,748	4,773	30,350	124,873	206,290	2,515	9,354	53,356	9,884	11,832	21,875	60,407	73,632	242,861	449,152
1986	4,433	45,424	4,744	45,208	135,950	235,758	2,961	11,584	60,216	8,841	11,627	37,894	70,387	78,092	281,602	517,363
1987	5,191	42,737	5,967	53,760	152,653	260,308	3,407	13,701	65,424	10,598	11,607	45,647	90,391	90,785	331,560	591,868
1988 5/																
Jan.	575	3,502	385	3,067	12,541	20,070	267	1,097	4,950	893	948	3,964	6,924	6,788	25,831	45,901
Feb.	1,300	3,281	451	5,178	12,813	23,025	345	1,187	5,227	835	1,060	4,158	8,498	8,496	29,806	52,830
Mar.	1,182	4,565	576	4,989	16,560	27,871	370	1,323	6,594	1,104	1,270	5,605	12,026	8,673	36,967	64,837
Apr.	1,077	3,503	546	4,266	14,972	24,364	374	1,298	5,938	902	1,282	4,922	11,936	8,818	35,469	59,834
May	933	3,400	441	3,831	13,483	22,088	317	1,235	6,226	1,237	1,465	6,395	12,808	9,517	39,400	61,488
June	1,201	4,199	343	4,262	12,891	23,098	323	1,115	5,557	964	992	5,545	11,105	8,147	33,749	56,847
July	982	4,089	343	3,196	12,191	20,801	464	1,194	5,309	882	1,052	5,029	9,815	7,490	31,234	52,036
Aug.	914	4,477	509	3,620	14,254	23,774	332	1,215	5,744	1,022	1,336	5,596	10,037	8,467	33,750	57,523
Sept.	958	3,841	780	3,512	14,859	23,949	531	1,305	5,718	1,128	1,363	4,816	13,111	8,045	36,016	59,967
Oct.	871	3,339	574	3,195	14,224	22,204	266	1,297	5,747	1,226	1,306	5,025	10,544	9,128	34,540	56,742
Nov.	969	4,037	569	3,170	14,885	23,629	452	1,239	6,137	1,177	1,273	5,457	9,596	7,807	33,139	56,768
Dec.	1,000	6,188	505	4,060	15,636	27,319	524	1,231	5,684	1,217	1,225	5,509	9,275	7,994	32,658	59,978
Total	11,962	48,351	6,225	46,347	169,309	282,192	4,565	14,736	68,831	12,587	14,572	62,221	125,675	99,370	402,559	684,751

1/ Includes products made from waste. 2/ Includes pile and tufted fabric such as corduroy. 3/ Includes ribbons, trimmings, and braids (except hat braids). 4/ Not elsewhere classified. 5/ Some categories revised.

Source: Bureau of the Census.

Table 20--Raw wool equivalent of U.S. textile imports, 1983-88 1/

Year and month	Noils	Wastes 2/	Tops and advanced wool	Yarns	Broad-woven fabric 3/	Wool blankets 4/	Wearing apparel			Carpets and rugs	Knit fabric	Narrow fabrics	Grand total imports
							Knit	Other than knit 5/	Other manufactures				
1,000 pounds													
1985	10,065	4,509	2,012	12,072	35,828	1,314	65,586	71,527	1,288	59,228	415	978	264,822
1986	9,898	5,205	1,838	11,814	25,058	2,373	80,193	75,375	1,829	60,572	606	862	275,623
1987	11,370	6,417	961	13,607	29,002	1,250	81,621	77,267	1,476	51,858	732	531	276,092
1988													
Jan.	1,047	422	7	846	2,019	64	2,557	4,936	135	3,911	35	27	16,006
Feb.	478	309	60	842	2,123	63	1,880	4,754	106	3,480	68	38	14,201
Mar.	643	519	24	1,228	3,507	60	1,722	3,884	208	3,921	34	54	15,804
Apr.	306	760	43	1,017	3,296	49	2,565	4,088	143	3,580	58	46	15,951
May	241	414	58	1,239	3,052	21	5,303	5,847	138	3,406	41	48	19,808
June	487	600	144	1,118	3,180	51	8,782	7,960	133	3,696	69	47	26,267
July	323	338	39	1,116	2,849	34	11,099	8,705	120	2,920	32	49	27,669
Aug.	226	547	67	1,100	2,258	120	12,805	9,921	115	3,125	8	35	30,327
Sept.	365	426	81	682	1,570	44	9,542	7,838	85	2,625	10	40	23,308
Oct.	402	500	73	1,273	1,895	68	8,123	6,404	121	3,336	18	38	22,251
Nov.	374	392	72	923	1,750	56	4,693	4,661	126	3,309	8	42	16,406
Dec.	829	816	31	984	1,934	36	2,194	4,037	190	3,266	17	52	14,386
Total	5,721	6,043	699	12,368	29,433	666	71,265	73,080	1,620	40,575	398	516	242,384

1/ Includes manufactures of mohair, alpaca, and other wool-like specialty hair. 2/ Not including rags. 3/ Includes pile fabric and manufactures, tapestry and upholstery goods, press and billiard cloths. 4/ Includes carriage and automobile robes, steamer rugs, etc. 5/ Includes laces, lace articles, veils and veilings, nets and nettings, when reported in pounds. 6/ Included in "other manufactures" for earlier years.

Source: Bureau of the Census.

Table 21--Raw wool equivalent of U.S. textile exports, 1983-88 1/

Year and month	Noils and wastes 2/	Tops and advanced wool	Yarns	Broad-woven fabric 3/	Wool blankets	Wearing apparel		Felts	Other manufactures 4/	Carpets and rugs	Knit fabric	Grand total exports
						Knit	Other than knit					
1,000 pounds												
1985	1,892	8,643	460	1,446	30	2,158	1,661	173	988	107	200	17,761
1986	1,862	5,787	465	2,146	35	1,906	1,857	100	1,523	156	133	15,970
1987	2,140	12,258	489	2,206	31	2,574	1,638	96	1,724	138	167	23,461
1988 5/												
Jan.	173	767	28	100	2	550	201	1	131	13	5	1,971
Feb.	187	829	12	214	2	322	214	4	166	18	18	1,986
Mar.	206	1,227	21	228	5	406	337	11	234	17	21	2,713
Apr.	245	860	42	180	2	214	251	4	164	29	21	2,012
May	344	934	18	315	3	288	251	66	146	15	15	2,395
June	210	1,562	36	142	1	288	175	69	308	11	19	2,821
July	286	1,794	45	140	4	221	212	5	189	17	37	2,950
Aug.	189	1,212	16	186	6	175	283	3	191	50	46	2,357
Sept.	191	1,686	39	222	3	398	285	108	300	20	4	3,256
Oct.	141	1,302	21	159	3	160	263	6	141	33	13	2,242
Nov.	151	2,503	18	189	3	128	257	6	148	41	7	3,451
Dec.	167	1,616	121	144	3	66	145	11	139	7	21	2,440
Total	2,490	16,292	417	2,219	37	3,216	2,874	294	2,257	271	227	30,594

1/ Includes manufactures of mohair, alpaca, and other wool-like specialty hair. 2/ Not including rags. 3/ Includes both broad and narrow woven fabrics. 4/ Census Bureau's Schedule B classification designated manufactures, n.e.c. 5/ Some categories revised.

Source: Bureau of the Census.

Table 22--Raw fiber equivalent of U.S. imports for consumption of vegetable fibers other than cotton textile manufactures, 1986-88

Year and month	Yarn	Cordage, thread, crochet, etc. yarns	Broad-woven fabric	Knit fabric	Narrow and misc. fabric	Wearing apparel		Handkerchiefs	Bedding, drapes, and towels	Lace articles	Floor covering	Misc. products	Grand total imports
						Knit	Not knit						
1986	18,596	196,761	255,231	50	2,098	51,150	21,187	51	4,359	305	8,786	30,179	589,113
1987	20,968	205,022	267,081	172	5,143	79,436	23,746	20	4,190	175	10,399	47,172	663,524
1988													
Jan.	1,719	18,520	15,647	32	371	3,808	5,397	1	201	9	545	3,872	50,122
Feb.	2,817	26,305	29,379	4	217	2,570	3,816		342	8	397	3,788	69,644
Mar.	2,022	56,636	18,737	2	354	1,583	2,640	2	241	18	781	5,032	88,048
Apr.	1,874	19,601	18,630	0	857	1,661	1,221	1	392	16	1,087	3,460	48,800
May	1,944	23,332	8,813	2	112	2,983	1,057	2	262	33	1,793	3,088	43,421
June	1,487	14,147	12,696	4	225	5,124	748	1	443	12	1,151	2,236	40,274
July	1,481	7,160	9,918	1	235	5,057	578	2	333	5	1,037	3,628	29,455
Aug.	1,568	3,725	10,733	8	101	4,794	734	1	492	18	1,238	6,172	31,584
Sept.	1,840	3,638	12,050	1	239	5,804	947	2	330	14	1,077	7,215	31,157
Oct.	1,581	8,644	15,291	4	783	8,228	1,231	3	329	5	1,344	4,696	42,159
Nov.	1,467	6,343	19,052	10	452	8,211	2,162	1	389	6	1,416	4,185	43,694
Dec.	1,795	16,289	16,314	7	238	5,604	3,341	2	280	3	1,379	3,017	48,267
Total	21,593	206,360	187,260	75	4,184	55,427	23,892	19	4,034	147	13,245	52,389	568,625

Source: Bureau of the Census.

Table 23--Raw fiber equivalent of U.S. imports for consumption of silk textile manufactures, 1986-88

Year and month	Yarn	Cordage, thread, crochet, etc. yarns	Broad-woven fabric	Knit fabric	Narrow and misc. fabric	Wearing apparel		Handkerchiefs	Bedding, drapes, and towels	Lace articles	Floor covering	Misc. products	Grand total imports
						Knit	Not knit						
1,000 pounds													
1986	550	53	10,015	2	70	14,804	15,090	382	162	61	37	1,830	43,056
1987	605	25	10,175	5	90	9,593	17,407	153	122	95	43	813	39,126
1988													
Jan.	48	1	660	0	6	658	2,148	14	17	6	8	20	3,586
Feb.	87	1	868	0	14	488	2,148	11	4	3	1	35	3,660
Mar.	59	1	718	0	25	402	1,539	12	13	3	2	74	3,848
Apr.	64	3	731	0	6	286	1,671	12	3	30	1	24	3,831
May	53	0	669	0	8	375	1,531	8	15	18	0	37	3,714
June	150	2	764	0	4	481	1,793	13	11	23	1	47	3,289
July	71	3	809	0	6	499	1,631	9	6	27	3	38	3,102
Aug.	54	1	977	1	3	557	1,812	16	5	25	0	55	3,506
Sept.	29	1	869	0	5	608	1,745	8	20	12	2	63	3,562
Oct.	46	1	952	0	4	690	2,102	25	14	5	0	40	3,877
Nov.	18	0	890	0	6	340	1,169	12	22	10	0	74	3,741
Dec.	64	1	945	0	14	372	2,108	9	28	9	0	35	3,585
Total	743	15	9,852	1	101	5,956	22,397	149	158	169	18	542	40,101

Source: Bureau of the Census.

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