farms and ranches with sheep had between 1 and 99 head. Twenty-three percent of ewes 1 year or older were in such flocks.

There is a sharp contrast in the size of sheep operations between the territory and fleece wool States (table 3). The typical flock size in the Western States ranges from 150 to 400 sheep, with some operations having several thousand sheep. The typical flock size in the fleece area is 20-50 sheep and is often only a small part of the farming operation, along with cattle and hog raising and crop production.

Along with the decline in sheep numbers and average flock size over the years, there has been a shift in the distribution of sheep numbers toward the territory wool States. In the early 1950's, 65-70 percent of all sheep were in the territory wool states; this figure has recently risen to 75-80 percent. Although weak demand for lamb and mutton and the adoption of manmade fibers have been the principal reasons for declining production, some wool production characteristics have also contributed to the decline. Profitability has been hurt by predator losses, high hired labor costs, and labor shortages.

Labor is costly and hard to find because sheepherding is a demanding job. In the Rocky Mountain area, where sheep flocks are large, flocks are moved to higher altitude, unfenced grasslands in the summer. In winter, the sheep are brought down to lower level, fenced pastures. To accomplish these seasonal moves and to care for the flock requires presence of a sheepherder and often the assistance of two or three dogs. Sheep, small and very passive, are subject to attacks by coyotes and eagles. Also, sheep experience hoof and skin problems. The level of care and protection required by sheep and death loss have been factors in the drop in U.S. wool production.

Table 3—Average flock size, 1988

Territory wool States		Fleece wool States[1]	
	Head		*Head*
Wyoming	608	Kansas	135
Arizona	568	Oregon	95
New Mexico	419	North Dakota	93
Nevada	305	Alaska	64
Colorado	282	Minnesota	54
Utah	234	Virginia	51
Texas	230	Nebraska	50
Montana	177	Oklahoma	48
California	148	Michigan	44
South Dakota	125	Ohio	36
Idaho	122	Iowa	34
		New York	34
Region average	219	Missouri	33
		Washington	33
		West Virginia	32
		Maryland	31
		U.S. average[2]	42

[1]Fleece wool States whose average flock size is greater than 30.
[2]Average flock size of all non-territory wool States.

Table 4 shows U.S. production in relation to supply and demand in the U.S. wool market. The sheep and lamb inventory on January 1, 1989, was 10.8 million head, essentially unchanged from a year earlier. The lowest inventory on record was slightly less than 10 million as of January 1, 1986.

Domestic Wool Use

U.S. wool use has declined dramatically since World War II (app. table 3). The principal reason has been the widespread consumer acceptance of noncellulosic manmade fibers, such as nylon, polyester, and acrylic, in wool textile products (fig. 1). Cotton has not been a factor. Wool and cotton do not compete for most end uses, and the fibers are rarely blended. Annual consumption of raw wool by U.S. textile mills declined from 650 million pounds, clean, in the late 1940's to an average of 134 million during 1984-88.

Factors Causing Consumption Trends

Price and performance explain the success of manmade fibers in penetrating the wool market. Although wool has wrinkle resistance because of the resiliency of the wool fiber, manmade fibers offer drip-dry washing, no shrinkage, and no moth damage. Relative price stability has also given manmade fibers some advantages.

Wool prices tend to be more uncertain than manmade fiber prices. They depend on economic forces affecting sheep numbers (such as lamb prices) in addition to forces affecting overall textile demand. Because about 70 percent of the wool consumed by U.S. mills is imported, changes in foreign production and demand can cause substantial swings in U.S. prices.

In contrast, the manmade fiber production process is continuous; it does not depend on biological lags and once or twice a year shearing. The quality of the product does not vary much either. Because a very high percentage of the manmade fibers used by U.S. mills is produced domestically, foreign supply and demand

Table 4—The U.S. wool market, 1984-88

Item	1984	1985	1986	1987	1988
Sheep shorn (mil.)	12.3	11.2	10.9	11.0	11.5
Yield (lbs/head, greasy)	7.8	7.9	7.8	7.8	7.8
			Million pounds, clean[2]		
Beginning stocks (Jan. 1)	58.9	51.6	50.6	46.8	45.3
Production	51.1	47.1	45.5	46.0	47.8
Imports	94.2	79.5	97.0	105.1	96.7
Supply[1]	194.2	168.6	184.3	189.1	189.8
Mill use	142.1	116.6	136.7	142.8	132.7
Exports	.5	1.4	.8	1.0	1.2
Total use	142.6	118.0	137.5	143.8	133.9
Carryover stocks	51.6	50.6	46.8	45.3	55.9
			Cents per pound, greasy		
Average producer price	79.5	63.3	66.8	91.7	138.0
Support price	165.0	165.0	178.0	181.0	178.0

[1]Includes unaccounted. [2]Clean wool is greasy wool that has been scoured. A pound of greasy wool yields an average of 0.53 pound of clean wool.

fluctuations for manmade fiber have very little effect on U.S. manmade fiber prices.

Major factors affecting the demand for wool today are fashion, relative fiber prices, price variability, and overall economic activity. Mills dislike price variability--even more than high, but stable, prices--because they can get caught in an uncompetitive position. A rival may be able to acquire raw fiber at a lower price because of a sudden price drop, giving the rival an edge in the retail textile market. Mill demand is probably less sensitive to the level of wool prices today than during the period when manmade fibers were being rapidly adopted. Desirable blend levels have been achieved, and there are simply fewer available markets for manmade fibers to penetrate.

There is a wide range of statistical estimates of the relationship between mill demand for wool and the price of wool. A typical study suggests a 10-percent change in wool price is associated with a 2- to 4-percent change in the opposite direction in the quantity of wool demanded. Economic activity is probably a more important factor, as indicated by the sharp drop in mill use during the 1982 recession and the rise in use during the 1983 recovery.

The wool used by mills is basically of two kinds: apparel and carpet. Apparel wool includes the finer fibers and is used to make yarns and fabrics used primarily for apparel. Two textile production processes use the apparel wool: the woolen and the worsted systems, each accounting for about half of the apparel wool used by mills today (table 5). Carpet wools are coarser and are used in the production of carpets and rugs. In the 1950's, nearly a third of U.S. wool use went for carpets and rugs. Today, such use is between 5 and 10 percent of total U.S. mill use of wool.

The worsted system manufactures spun yarns from wool fibers that are usually over 3 inches long. The worsted system first cards the fibers, which cleans, separates, and aligns them. The system has a second process known as combing which removes the shorter fibers and arranges the longer fibers in parallel order. The resulting strand is then put through several drawing (for elongation) and twisting (for strength) operations to make a yarn. Combing results in a yarn that is more even, stronger, finer, and smoother than a carded yarn. Worsted yarns make fabrics which are woven tightly and have a crisp feel, such as gabardines, sharkskins, and serge. Worsted fabrics are almost entirely used to make fine-quality suiting.

The woolen system makes yarns from wool fibers that are less than 3 inches in length and more highly crimped. The fibers are first carded and then made into yarn, but they are not combed. The resulting yarn contains shorter fibers and is not as uniform or strong as combed yarns. Woolen yarns produce fabrics that are soft, bulky, and have a fuzziness or nap. The nap makes the fabric feel warm and soft. Tweed, felt, and many knitted wool products are examples of woolens.

Figure 1
U.S. per capita fiber mill consumption, 1950-88

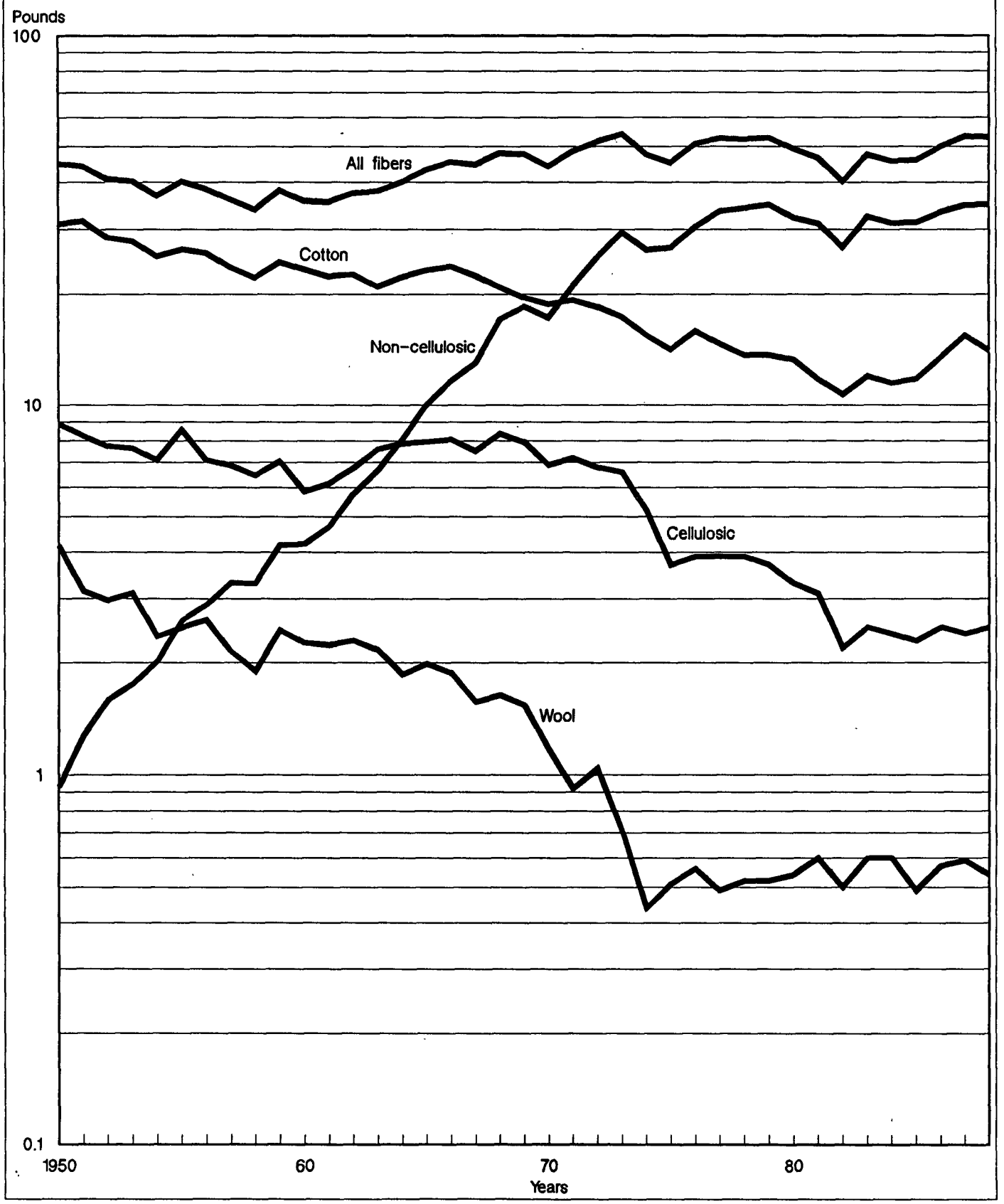

Table 5—U.S. mill consumption of raw wool, 1982-88

Product description	1982	1983	1984	1985	1986	1987	1988
				1,000 pounds			
All fibers	558,001	665,484	628,405	569,962	676,791	720,105	730,022
Raw wool[1]	115,682	140,580	142,070	116,613	136,728	142,769	132,702
Apparel class	105,857	126,729	128,982	106,051	126,768	129,677	117,069
Woolen system	48,345	60,681	65,160	55,740	66,289	61,014	44,645
Worsted combing	57,512	66,048	63,822	50,311	60,479	68,663	72,424
Carpet class	9,825	13,851	13,088	10,562	9,960	13,092	15,633
Noils, reprocessed and reused wool, and fiber[2]	25,351	32,188	38,087	25,166	34,574	29,669	23,890
Other fibers	416,968	492,716	448,248	428,183	505,489	547,667	573,430

[1]Clean basis. [2]Noils are short fibers from carding and combing operations.

Woolen system fabrics are used for such items as overcoats, suits, dresses, sweaters, and blankets.

A major factor in the decline of U.S. wool use was the loss of the carpet market to noncellulosic fibers, mainly nylon. U.S. wool use today would be twice as large if carpet use of wool were the same as in the decade following World War II. The lower cost tufting process (yarns drawn in and out of a backing material and then cut, or left uncut) was commercially developed in the 1950's. Manmade fibers were quickly adapted to this process, offering a durable, competitively priced carpet. During the 1980's, carpet use of wool was about 12 million pounds a year, compared with 147 million pounds averaged during the decade following World War II.

Noncarpet use of wool has been about 120 million pounds a year in the 1980's, with about 80 percent of this used for apparel. The rest is used for such items as drapes, upholstery, felts, and blankets. About 75 percent of wool apparel is in the "bottomweight" category, heavier weight fabrics that generally weigh more than 5 ounces per square yard. In recent years, there has been strong demand for suiting fabrics, boosting demand for the finer grades of wool relative to the medium grades.

The long-term downward trend in per capita consumption of wool appears to have bottomed out in 1980 and stabilized at a slightly higher level since (table 6). Wool accounted for 10 percent of end-use fiber consumption in the United States in 1950. Cotton and wool combined had nearly 80 percent of the market. By 1988, the natural fiber share had dropped to about 38 percent, and wool's share was 2 percent. Wool is expected to maintain its present level of per capita consumption but continues to account for a declining share of a growing market for fibers. Aggressive advertising by the wool industry could educate consumers to be more aware of the fiber content of the textiles they purchase, perhaps helping to maintain market share. A major research effort by the wool industry might result in a significant improvement of wool's performance, such as resistance to moth damage and easy washing properties.

Table 6—Per capita U.S. domestic consumption of fibers, 1950-88[1]

Year	Cotton	Manmade fiber	Wool	Flax/silk	Total
		Pounds per person[2]			
1950	29.4	9.5	4.6	---	43.5
1960	23.5	10.0	3.0	---	36.6
1970	20.1	25.2	1.7	---	47.0
1980	14.6	34.4	.9	---	49.9
1981	14.4	34.2	1.0	---	49.7
1982	13.5	30.8	.9	---	45.2
1983	15.9	37.5	1.2	---	54.6
1984	16.8	37.2	1.4	---	55.4
1985	17.7	38.7	1.5	---	57.9
1986	20.2	40.7	1.6	2.6	65.2
1987	23.8	42.1	1.6	2.9	70.4
1988	21.4	41.7	1.4	2.5	67.0

--- = Not available.
[1]Raw fiber equivalent of end-use consumption of textiles.
[2]Totals may not add due to rounding.

Even so, trends of noncellulosic fiber penetration into existing wool textile products are expected to continue,

although at slower rates. The major manufacturers of noncellulosic fibers will continue their massive budgets for advertising and for research efforts to solve technological problems limiting the current use of their fibers. Further, developing countries, especially in East Asia, will greatly increase their manmade fiber production.

Use of Imported Wool

Not only has wool lost markets to manmade fiber, but U.S. wool has lost markets to foreign wool (table 7 and app. table 5). Over four-fifths of the wool textiles purchased by U.S. consumers during 1988 were foreign produced or made from imported raw wool. In recent years, imported raw wool and the raw wool content of textile imports have each exceeded U.S. wool production. The growth of imports has been both a consequence of and a contributor to the decline in domestic raw wool production. During 1979-88, Australia and New Zealand were the source of 85-90 percent of imported raw wool. Argentina, Uruguay, and the United Kingdom together constituted 8-10 percent.

Imported raw wool is divided into two classes, duty-free and dutiable. The duty-free wool is the coarser grades of wool. There is no duty because very little domestic wool of these grades is produced. The dutiable wool is the finer grades, which compete with domestic wool. Dutiable wool imports have been almost twice the quantity of duty-free imports, reflecting the increasing U.S. demand in recent years for the higher quality apparel which requires the finer wool grades.

Several important factors have accounted for the import growth. First, foreign wool quality is high and prices are competitive with U.S. prices even with duties, which average 10 cents a pound, clean, and represent less than 5 percent of the dutiable raw wool price. The duties provide some restraint on imports. The U.S. tariff has been reduced sharply since 1979, when it averaged 25.5 cents a pound, as a result of the Tokyo Round negotiations under the General Agreement on Tariffs and Trade (GATT). Second, in the early and mid-1980's, the dramatic appreciation of the U.S. dollar caused a surge in most U.S. imports, such as textiles, and a drop in commodity exports. Third, a growing demand for high-quality wool, such as merino, boosted use of wool from Australia, which produces a high proportion of the finest qualities.

Table 7—U.S. production, imports, and mill use of raw wool; wool textile trade; and domestic consumption, 1984-88

Item	1984	1985	1986	1987	1988
	Million pounds				
Raw wool:[1]					
Production	51.1	47.1	45.5	45.5	47.8
Imports	94.2	79.5	97.0	105.1	96.7
Mill use	142.1	116.6	136.7	142.8	132.7
Wool textiles:[2]					
Imports	210.2	264.8	275.6	276.1	242.4
Exports	12.0	17.8	16.0	23.5	30.6
Domestic wool:					
Consumption[3]	340.3	363.6	396.3	395.4	344.5

[1]Clean basis. [2]Raw fiber equivalent. [3]Mill use plus textile imports less textile exports.

A major development in the 1970's and 1980's has been the growth in imported wool textiles, mostly apparel. In 1977, the raw wool content of imported wool textiles was 117 million pounds, clean, twice domestic raw wool production. By the late 1980's, imports more than doubled from the average level of 114 million equivalent pounds of raw wool in 1977-82 to the record high of 276 million pounds in both 1986 and 1987, more than five times domestic raw wool production. Textile imports in 1988 were 242 equivalent million pounds. Major sources of these wool-containing textile imports, ranked by volume, were: (1) Hong Kong, (2) China, (3) Korea, (4) Italy, (5) Taiwan, and (6) the United Kingdom.

Relatively little domestic wool is exported. Except for a few years in the early 1970's, the price of U.S. wool has not been competitive with foreign prices. Likewise, the quantity of exported wool textile products has been small, 5-10 percent of wool textile imports, a result of higher domestic textile costs.

The World Wool Market

U.S. demand, supply, and policy changes do not significantly affect world markets for wool, since the U.S. industry is small. Australia is the dominant producer and exporter (tables 8 and 9 and app. tables 10 and 11). In 1988, U.S. sheep numbers and wool production accounted for only 0.9 percent and 1.3 percent of the respective world totals.

World wool production in the 1970's averaged about 6 billion pounds, greasy. During the 1980's, production has steadily increased, totaling a record 7.1 billion pounds in 1988-89. Australia produced 2.1 billion pounds in 1988-89. This record Australian output resulted from record sheep numbers and record clips. The USSR, ranking second, produced 1.1 billion

Table 8—World, top seven countries, and the United States: Sheep, wool production, and wool trade, clean basis, 1983-88

Item	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89
			Million head			
Sheep numbers[1]	1,100	1,097	1,103	1,122	1,145	---
Australia	133	144	150	153	160	161
USSR	145	143	141	142	141	139
China	99	96	94	100	108	111
New Zealand	70	68	68	64	65	63
Argentina	34	29	29	29	29	---
Uruguay	21	21	23	24	26	---
South Africa	24	23	23	24	25	---
United States	12	10	10	10	11	11
			Million pounds, clean			
Wool production[1]	3,702	3,847	3,836	3,922	4,017	4,090
Australia	1,014	1,153	1,177	1,259	1,307	1,354
New Zealand	597	611	586	578	573	551
USSR	483	485	465	487	474	481
China	214	203	198	205	231	247
Argentina	214	198	201	198	207	220
Uruguay	119	104	126	130	130	126
South Africa	134	132	123	115	119	126
United States	53	51	46	46	46	49
Wool exports from five main exporting countries[2]	1,613	1,681	1,731	1,882	1,799	---
Australia	784	876	977	1,096	1,079	---
New Zealand	570	591	530	571	521	---
Argentina	120	96	111	99	101	---
South Africa	82	80	60	50	47	---
Uruguay	57	38	54	66	50	---
United States	1	1	1	1	1	---

--- = Not available
[1]World total. [2]Five-country total.

pounds. Its output has averaged slightly more than a billion pounds over each of the last 10 years. New Zealand, the third largest, produced 739 million pounds in 1988-89. Because of lower economic returns, its output has declined every year since 1982-83. Successful state incentives boosted Chinese production in 1988-89 to a record high 492 million pounds, up 7 percent from the previous year.

The Soviet Union is the largest consumer of wool, accounting for about 18 percent of world mill use of wool during 1988. China was second with about 17 percent of world use. Soviet use has been growing slowly in recent years, but Chinese use more than doubled between 1980 and 1988. While part of this tremendous growth reflects increased domestic needs, China's emphasis on textile exports is the major factor. The European Community (EC) and Japan accounted for 30 percent of world wool use in 1988, about the same share of the previous 4 years.

The share of world raw wool imports claimed by the major industrial countries--the United States, the EC, and Japan--has declined from a combined total of 84 percent in 1966 to 59 percent in 1988 (table 10). The growth markets for raw wool have been the Soviet Union and the East Asian textile exporters (Taiwan, South Korea, Malaysia, and China). The Soviet import share more than doubled since 1966, while the East Asian share expanded nearly ninefold. Wool imports in the Soviet Union are destined exclusively for domestic textile consumption, while a large portion of East Asian imports are re-exported as textiles. Wool imports have an uncertain future in both markets as the Soviet Union has the potential to become more self-sufficient, and East Asian importers are rapidly increasing their man-made fiber production capacity.

Table 9—World, top seven countries, and the United States: Wool production and wool trade, greasy basis, 1983-88

Item	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89
			Million pounds, greasy			
Wool production, total[1]	6,510	6,695	6,698	6,832	6,969	7,121
Australia	1,605	1,795	1,830	1,955	2,015	2,088
USSR	1,069	1,076	1,032	1,085	1,052	1,067
New Zealand	802	822	789	772	763	739
China	428	403	392	408	461	494
Argentina	357	331	335	331	346	368
Uruguay	181	157	192	198	196	192
South Africa	238	229	216	198	203	216
United States	104	97	90	86	86	90
Wool exports from five main exporting countries[2]	2,311	2,403	2,489	2,694	2,584	---
Australia	1,244	1,389	1,540	1,724	1,696	---
New Zealand	680	700	620	662	607	---
Argentina	166	132	153	132	133	---
South Africa	136	129	99	82	77	---
Uruguay	85	54	77	94	72	---
United States	1	1	1	1	1	---
Wool imports into the principal importing countries[3]	2,414	2,640	2,747	2,971	2,832	---
Japan	406	404	390	451	385	---
China	123	250	336	336	413	---
United Kingdom	257	282	261	306	280	---
USSR	197	241	254	295	282	---
Italy	233	265	241	269	252	---
France	282	291	290	261	253	---
West Germany	165	170	161	176	167	---
Belgium-Luxembourg	103	122	128	141	147	---
Taiwan	79	89	110	114	78	---
United States	116	94	122	128	117	---
South Korea	61	69	84	99	84	---
Yugoslavia	40	46	46	36	27	---

--- = Not available
[1]World total. [2]Five-country total. [3]Total of 32 countries.

World raw wool exports primarily originate in southern hemisphere countries, destined for the industrialized countries of the northern hemisphere. Five countries--Australia, New Zealand, Argentina, South Africa, and Uruguay--account for 96-98 percent of world raw wool exports. Market shares have changed over the past 5 years. Australia's share of the five-country total increased from 54 percent in 1983-84 to almost 66 percent in 1987-88. New Zealand's share declined from 29 percent to less than 23 percent.

World wool prices are a major determinant of U.S. prices (table 11). Australia, New Zealand, and South Africa influence world prices through marketing boards. The Australian reserve price system is designed to keep Australian auction prices stable and reflective of world supply and demand. The Australian Wool Corporation (AWC) buys all wool offered at auction when bids do not reach minimum reserve prices, which are set annually. The AWC sells wool when demand and auction prices improve. South Africa and New Zealand have similar systems, and their reserve prices tend to follow those set by the AWC.

Even though Australian wool is more expensive than U.S. wool, much is imported because of its quality. It is better graded and sorted than U.S. wool. Shorter fibers are removed, it has less belly fiber, and it has fewer black fibers which are undesirable to textile mills. Fewer such undesirable fibers reduce the processing costs in U.S. mills.

Average quality of U.S. wool is also lower than dutiable imported wool because of breeding. Most U.S. sheep

Table 10—World raw wool imports and import market shares, 1966-88

Year	World imports	United States	EC-12[1]	Japan	USSR	East Asian textile exporters[2]
	Billion lbs., greasy			Percent		
1966	3.23	11.7	52.4	19.6	4.2	---
1971	3.01	5.3	49.6	22.6	---	0.2
1976	2.91	206	50.5	20.5	8.3	3.3
1981	2.57	3.7	43.0	14.4	10.8	9.3
1984	2.41	4.8	47.1	16.8	8.2	5.0
1985	2.70	3.5	46.0	15.1	8.9	6.9
1986	2.81	4.3	42.8	13.9	9.0	8.6
1987	3.04	4.2	41.9	14.8	9.7	8.5
1988	2.91	4.0	41.4	13.2	9.7	9.3

--- = Not available.
[1]Includes the United Kingdom, Ireland, France, Portugal, Spain, West Germany, Denmark, Greece, Belgium, Luxembourg, the Netherlands, and Italy.
[2]Malaysia, South Korea, Taiwan, and China.

Table 11—U.S. and Australian wool prices, 1983-88[1]

Item	1983	1984	1985	1986	1987	1988
			U.S. dollars per pound, clean			
United States[1]	2.12	2.29	1.92	1.91	2.65	4.38
Australia[2]	2.74	2.78	2.59	2.48	3.67	5.84
Duty	.10	.10	.10	.10	.10	.10

[1]Mill-delivered graded territory 64's. [2]Australian 64's, type 62; loaded on trucks in South Carolina, includes duty.

are crossbreeds, which produce a coarser wool than sheep types such as merino. The U.S. industry emphasizes high lamb output per breeding ewe, and the crossbred carcass has a higher volume of the desirable lamb cuts than other types.

Prices and Producer Returns

During the 1950's and 1960's, producer prices for shorn wool generally averaged between 40 and 50 cents a pound and were fairly stable (fig. 2 and app. table 7). However, wool prices fluctuated sharply during the 1970's, as did other commodity prices. Prices ranged from 19 to 86 cents a pound. During the 1980's, prices have remained volatile, ranging from $0.61 to $1.38. Imported raw wool and wool textiles in the 1970's and 1980's accounted for an increasing share of U.S. wool use, which magnified the impacts of foreign developments on the U.S. market.

Because the United States exports little wool and produces only one-third what U.S. mills use, foreign supply, demand, and prices (reflected through exchange rates), rather than U.S. supplies, are major determinants of U.S. prices. Also, changes in U.S. raw wool stocks provide only a partial indication of the relative tightness of the U.S. market and thus prices. Instead of U.S. stocks rising or falling significantly in times of surplus or shortage, raw wool imports tend to change, and this lessens the U.S. stocks change. End-of-year stocks between 1986 and 1988 were an ample 45 to 56 million pounds--about 4 months' mill use--yet prices set successive records of 92 to 138 cents a pound. In 1987 and 1988, foreign wool production was fairly stable, but very strong demand reduced world stocks and pulled up prices.

Costs and Returns

The price of meat--not wool--is the major factor determining the average U.S. sheep producer's income. Average cash receipts per ewe were $58 in 1984 but rose to a high of $73 in 1987 (table 12). Wool market receipts and Government payments to wool producers to support their incomes (made on the basis of each producer's sales value of shorn wool and hundredweight of live unshorn lambs marketed) accounted for around one-third or less of gross receipts. Because of relatively high sheep prices in 1984-87, revenue from

Figure 2
Weighted average price received by producers for wool and mohair, 1950-88

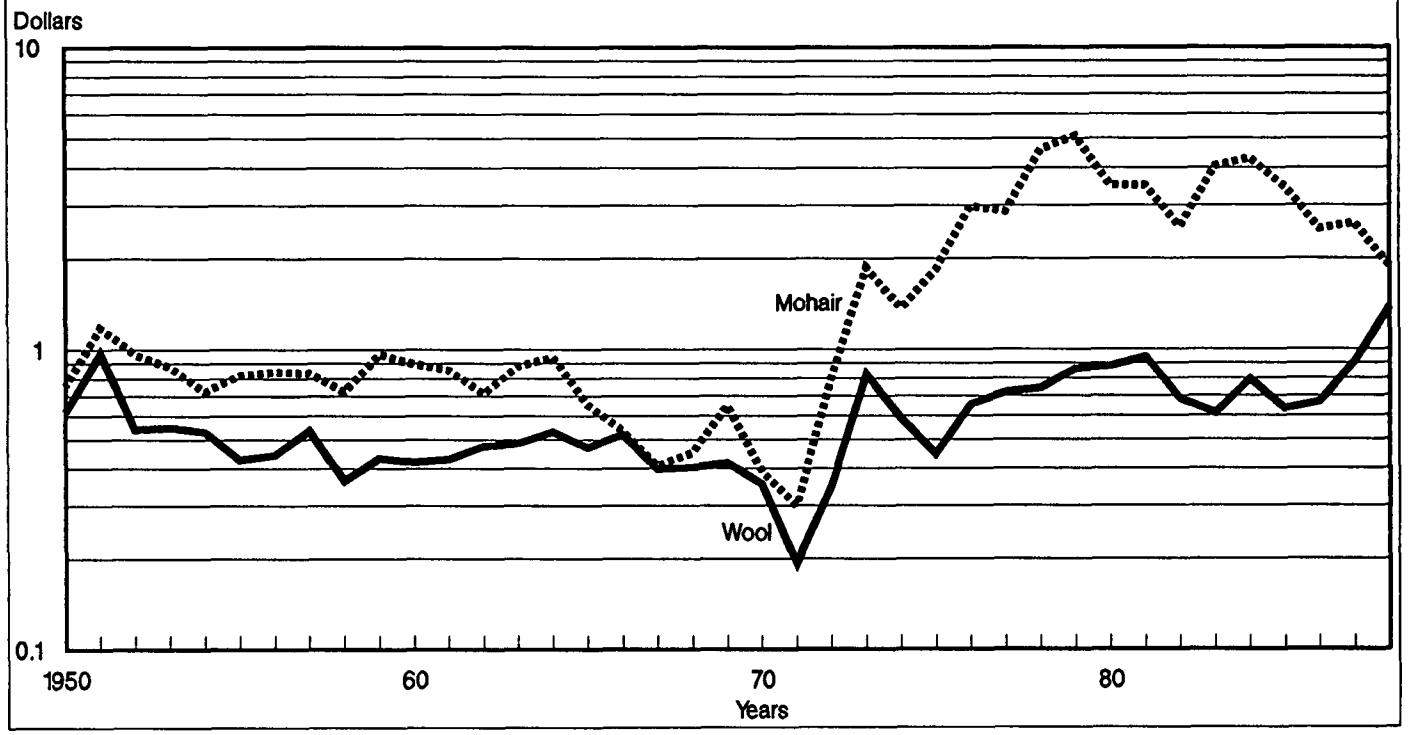

Table 12—U.S. sheep production receipts and costs, average per ewe, 1984-87

Item	1984	1985	1986	1987
		Dollars		
Cash receipts:				
Meat	38.15	46.12	45.59	53.16
Wool	8.81	6.84	7.35	7.62
Shorn wool payment	9.47	10.99	11.78	10.48
Unshorn lamb payment	1.81	2.21	2.40	1.79
Total	58.24	66.16	67.12	73.05
		Percent		
Wool share	34.50	30.29	32.08	27.23
		Dollars		
Cash expenses:				
Fixed	11.43	9.87	14.84	16.07
Variable	29.47	29.40	28.43	28.59
Total	40.90	39.27	43.27	44.66
Receipts less cash expenses	17.34	26.89	23.85	28.39
Net receipts for sales of meat and wool	6.06	13.69	9.67	16.12
Wool support payments	11.28	13.20	14.18	12.27

meat and wool sales was sufficient to cover cash expenses.

Total cash expenses per ewe ranged from about $39 to $45 between 1984 and 1987. Inflationary pressures in the economy affected most input costs. Three items constituted nearly two-thirds of total cash expenses during 1985-87: interest, hired labor, and feed. Feed was the largest expense, varying from about 35 percent in 1984 and 1985 to 28 percent in 1987. Interest expense ranged from 12 percent in 1985 to 20 percent in 1987. Hired labor expenses averaged about 16 percent each year.

With receipts rising faster than costs, average net returns after paying cash expenses rose from $17 to $28 per ewe between 1984 and 1987. However, without a Government price-support program, sheep producers' average receipts would have ranged from $6 in 1984 to $16 per ewe in 1987. Thus, wool support payments remain very important to sheep producers, representing about 50 percent of net cash receipts.

Structure of the Mohair Industry

Mohair is the fleece of the Angora goat. About 80 percent of the Angora goats in the United States are

raised in Texas, mainly in the Edwards Plateau region in the southwestern part of the State. Texas is especially suited for mohair production, because it has the native shrubbery and plants and a warm, dry climate which Angora goats favor. New Mexico with 7.4 percent and Arizona with 5.5 percent were a distant second and third in Angora goat populations.

Mohair Production

The number of Angora goats clipped in Texas exceeded 4 million during World War II, but dropped sharply to a low of 2.1 million in the early 1950's (app. table 2). Economic growth spurred total fiber use during the late 1950's and 1960's and mohair use benefited, pushing the number of goats clipped to a peak of 4.6 million in 1965. Rapid adoption of manmade fibers caused steady declines until the late 1970's. The number clipped about stabilized between 1977 and 1983. High mohair prices in the mid-1980's encouraged goat numbers to increase (table 13). On January 1, 1989, the total U.S. Angora goat inventory was 1.82 million head, of which 82 percent were in Texas.

The 1982 Census of Agriculture provided data on the average size of a goat-producing operation. There were 3,247 farms with a total of 1.2 million Angora goats, or 382 head per farm. Texas had 75 percent of the farms with an average of 434 goats per farm.

The trend in mohair production has reflected the trend in the number of goats clipped, dropping sharply since 1965. However, the mohair yield per goat clipped has increased since World War II. Goats are clipped once or twice a year, and the average weight of fleece clipped has grown from 4.9 pounds per goat during the 1940's to a record 8.1 pounds in 1987.

Domestic Mohair Use

Domestic mill use of mohair varies depending on available supplies, mohair prices, and fashion. In recent years, annual use has been between 100,000 and 200,000 pounds, clean, which is only 1-2 percent of U.S. mohair production. Exports are the major market for U.S. mohair (app. table 4). Domestic use of imported mohair is minor, usually less than 10 percent of total domestic use.

Mohair is virtually insignificant in relation to the total U.S. fiber market. In 1988, U.S. per capita mill consumption of all fibers was 52 pounds. Per capita consumption of U.S. mohair has been only 1 part in 100,000 (0.001 percent). Mohair is a specialty fiber and its price, which may be two or three times greater than wool, cotton, and polyester, limits wide acceptance.

Mohair is generally blended with other fibers when producing a textile product. Rarely used alone because of its brittleness, it is most often blended with wool and, to

Table 13—The U.S. mohair market, 1984-88

Item	1984	1985	1986	1987	1988
Goats clipped (mil.)	1.45	1.73	2.00	2.00	2.32
Yield (lbs/head, greasy)	7.72	7.70	8.00	8.10	7.50
			Million pounds, clean[3]		
Beginning stocks (Jan. 1)	1.25	1.02	1.30	1.54	1.78
Production	9.25	10.99	13.51	13.99	13.17
Imports	0	.02	.01	0	.06
Supply[1]	9.47	11.00	16.26	15.89	15.98
Domestic use[2]	.70	.70	.10	.10	.20
Exports	7.75	8.99	14.62	14.01	14.38
Total use	8.45	9.69	14.72	14.11	14.58
Carryover stocks	1.02	1.30	1.54	1.78	1.40
			Dollars per pound, greasy		
Average producer price	4.30	3.45	2.51	2.63	1.89
Support price	5.17	4.43	4.93	4.95	4.69

[1]Includes unaccounted. [2]Estimated actual mill use provided by industry sources; not computed as a residual as in appendix table 4. [3]Clean basis is 76 percent of greasy basis. Totals may not add due to rounding.

a lesser extent, manmade fibers, such as acrylic. Because manmade fibers and high-quality lustrous wools can substitute for mohair, the relative prices of mohair and these other fibers can affect mohair demand. The properties that make mohair desirable in blends are its luster, resilience, wrinkle resistance, durability, and feel. The finer grades (thin diameters) are used in blends that contain a high percentage of mohair, in summer-weight apparel, and in sweaters. The coarser grades are used in coats and suits.

South African production accounts for about 50 percent of world production (table 14). South Africa and the United States produce a premium mohair and both have the world's highest yields. South African production is marketed through the South African Mohair Board. Turkey, with about a quarter of world production, saw mohair production rise in the late 1970's and then fall in the 1980's. Turkish yields are about half of U.S. yields as a result of crossbreeding and only one shearing per year. The Turkish government operates cooperatives that purchase mohair from the producer, which allows the government to provide a minimum price floor.

World Mohair Market

The major producers--South Africa, the United States, and Turkey--are also the major exporters of raw mohair. Smaller quantities are produced in Argentina, Lesotho, Australia, and New Zealand (table 14). Although there has been an increase in exports of processed mohair, such as top (a continuous, untwisted strand of scoured mohair fibers from which shorter fibers have been removed) and yarn, most of the world's production is exported as raw fiber.

The United States accounts for about 35 percent of the exports of the major traders. U.S. exports in the late 1980's soared to record levels because of reduced production in South Africa and a drop in its exports.

Virtually all U.S. mohair exports are to Europe, with much going to the United Kingdom, the world's major importer of raw mohair. The main processing center is in Bradford, England, where raw mohair is turned into top and yarn, of which a sizable portion is re-exported. South Africa is the major U.S. competitor in the U.K. market.

Growth in U.S. mohair output will depend on the export market which is in developed countries. With continued economic growth, U.S. exports could increase in the 1990's. However, mohair's volatile price will tend to keep it a specialty fiber for only high-priced, better quality applications.

Prices

Average market prices of mohair rose from a low of 30 cents per pound in 1971 to a high of $5.10 in 1979 (app. table 7). With 90 percent of U.S. mohair production exported, swings in foreign production and demand cause a continued pattern of instability. A growing preference for mohair in Europe and Japan in the 1970's accounted for the rising prices and generally increasing world use. The growing demand, in turn, reduced demand for substitute fibers. Thus, prices in the mohair market were more independent of prices in other fiber markets.

Since 1983, mohair prices have declined substantially. During 1988, producer prices averaged only $1.89 a pound, a 28-percent decline from the previous season. Despite strong exports and declining carryover stocks, the average price dropped $2.80 a pound below the Government price-support level, the basis for Government price-support payments made to mohair produc-

Table 14—World mohair production, 1984-88

Country	1984	1985	1986	1987	1988
			Million pounds, greasy		
United States[1]	11.2	13.3	17.8	18.4	17.3
South Africa	17.1	19.2	22.3	26.2	27.0
Turkey	8.0	7.7	7.7	7.7	6.0
Argentina	2.7	2.5	2.7	2.6	2.5
Australia	1.1	1.2	1.3	2.1	1.8
Lesotho	1.0	1.0	1.0	1.3	1.0
New Zealand	.1	.2	.2	.4	.7
Seven-country total	41.2	47.4	55.0	57.9	55.4

[1]Estimates for 1984-87 included Texas production and an estimate for other States using Agricultural Stabilization and Conservation Service (ASCS) payment data.

ers. Changes in fashion and a decline in the popularity of hand-knitting partially account for the drop in mohair prices.

History of the Wool and Mohair Programs

Today's wool and mohair price-support programs are the consequence of several laws passed between 1938 and 1985. Most significant was the National Wool Act of 1954, which created the wool and mohair program provisions that are essentially in effect today.

Early Legislation

Wool and mohair were not covered by early farm legislation. The Agricultural Adjustment Act of 1933 did not include them among the "basic" commodities. It was not until the Agricultural Adjustment Act of 1938 that price-support loan programs for wool and mohair were authorized. Programs were then implemented but were not mandatory, as were those for wheat, corn, and cotton.

Price support became mandatory for wool as a result of a law passed in 1947, and such support was continued in the Agricultural Act of 1948. The Agricultural Act of 1949 added mohair to the list of commodities requiring mandatory price support and set the support level for wool and mohair at between 60 and 90 percent of parity. Parity prices were established to provide a specific level of purchasing power, and they were changed according to a formula that considered changes in farm and nonfarm prices over the most recent 10 years. The 1949 Act also required that wool be supported at a price that would encourage annual production of 360 million pounds of shorn wool, greasy basis. Although production exceeded that level during World War II, it dropped sharply afterward, falling to 217 million pounds in 1950. Thus, the legislated production goal required support to be set at the maximum 90 percent of parity. But, even at that level, production fell short of the goal.

The 1954 Act and Support Payments

The National Wool Act of 1954 (Title VII of the Agricultural Act of 1954) established a new price-support program for wool and mohair. The rationale stated in the act was: "wool is an essential and strategic commodity which is not produced in quantities and grades in the United States to meet the domestic needs and that the desired domestic production of wool is impaired by the depressing effects of wide fluctuations in the price of wool in the world markets." The significant feature of the program for producers was that direct payments were authorized as a method of supporting incomes and, since 1955, it has been the only method used. Earlier, support was accomplished using only Government loans and purchases.

Under the new act, shorn wool was to be supported at between 60 and 110 percent of the parity price, if payments were used. Support was to be established at a level between 60 and 90 percent of parity only if loans and purchases were to be used. The support price was to be set to encourage annual production of 300 million pounds of shorn wool. Pulled wool and mohair were to be supported at roughly comparable levels. The Secretary of Agriculture had discretion to set the support price for shorn wool, "after consultation with producer representatives, and after taking into consideration prices paid and other cost conditions affecting sheep production."

The support price was set at 62 cents a pound for shorn wool for 1955, about 19 cents above the average market price received by producers (table 15). Prior to 1955, market prices were near or even above the support price. However, maintaining this level of support with loans and purchases had built Government-owned woolstocks to over 50 percent of a year's production by the time the 1954 Act was implemented. The change to supporting prices with direct payments, rather than loans and purchases, allowed market prices to fall below the support price. The support price remained at 62 cents a pound through 1965, well above the market price during the period. The support price and the direct payment were forerunners of the target price and deficiency payment concepts implemented for grains and cotton in the 1970's.

The method of computing wool and mohair payments, established in the 1954 Act and used today, differs from that used for other major crops where producers receive a fixed payment per unit of production. The wool and mohair payment per unit of production increases as the value per unit of the producer's wool and mohair increases. This payment to wool and mohair producers is supposed to encourage the production of higher quality (higher value) fiber and improve marketing. The payment rate is based on the percentage needed to bring the national average market price received by producers up to the support price.

For example, the 1988 support price for shorn wool was 29 percent above the average market price. So,

each producer received a payment equal to 0.29 times the producer's dollar return from the sale of wool. Thus, the greater the price a producer receives for wool, the greater is the per pound support payment.

Changes in the Support Price

The major legislative changes in the wool and mohair program since 1955 have centered on the method used to compute the support price on which the sup-

Table 15—Wool and mohair: Marketing year prices and Government payments, 1955-89[1]

Year	Wool			Mohair		
	Support price	Average market price received by producers	Government payments	Support price	Average market price received by producers	Government payments
	Cents per pound, greasy		*Mil. dol.*	*Cents per pound, greasy*		*Mil. dol.*
1955	62	42.8	57.6	70.0	82.2	NP
1956	62	44.3	51.9	70.0	84.4	NP
1957	62	53.7	16.1	70.0	83.7	NP
1958	62	36.4	85.1	70.0	72.3	NP
1959	62	43.3	53.9	70.0	96.4	NP
1960	62	42.0	59.5	70.0	89.7	NP
1961	62	42.9	56.9	73.0	85.6	NP
1962	62	47.7	39.2	74.0	71.4	0.8
1963	62	48.5	27.2	76.0	88.1	NP
1964	62	53.2	20.3	72.0	94.3	NP
1965	62	47.1	34.2	72.0	65.5	2.0
1966	65	52.1	26.2	75.8	53.7	6.5
1967	66	39.8	57.7	76.4	40.9	11.5
1968	67	40.5	54.4	77.4	45.2	10.6
1969	69	41.8	50.6	77.4	65.1	2.0
1970	72	35.5	64.0	80.2	39.1	7.8
1971	72	19.4	102.3	80.2	30.1	10.0
1972	72	35.0	68.0	80.2	81.4	NP
1973	72	82.7	NP	80.2	187.0	NP
1974	72	59.1	14.5	80.2	137.0	NP
1975	72	44.7	40.9	80.2	185.0	NP
1976	72	65.7	7.0	80.2	298.0	NP
1977	99	72.0	28.9	149.8	287.0	NP
1978	108	74.5	36.1	164.7	459.0	NP
1979	115	86.3	30.8	194.3	510.0	NP
1980	123	88.1	37.5	290.3	350.0	NP
1981	135	94.5	47.0	371.8	350.0	1.9
1982	137	68.4	71.9	397.7	255.0	16.8
1983	153	61.3	116.9	462.7	405.0	6.3
1984	165	79.5	92.3	516.9	430.0	10.3
1985	165	63.3	103.8	443.0	345.0	12.6
1986	178	66.8	106.9	493.0	251.0	42.7
1987	181	91.7	84.5	495.0	263.0	35.3
1988	178	138.0	41.4	469.0	189.0	47.1
1989	177			458.8		

NP = No payment because average price exceeded support price.

[1]Support prices and Government payments are for marketing years beginning April 1 for 1955-62; the 9 months April through December for 1963; and calendar years beginning in 1964. Market prices are for calendar years 1955-56 and 1964-88; April-May marketing years for 1957-62; and April-December for 1963. Government payment includes deduction for promotion.

port payment is based. From 1955 through 1965, the support price was set by the Secretary of Agriculture at 62 cents a pound for shorn wool (table 15).

The Food and Agriculture Act of 1965 introduced a formula for determining the support price. The formula adjusted the 62-cent price by the percentage change in the index of prices paid by all farmers for production inputs during the 3 most recent years, compared with that index during 3 base years, 1958, 1959, and 1960. There was no adjustment in the formula for productivity changes (changes in output per sheep or goat). The use of the formula resulted in a slow rise in the support price during the late 1960's and, by 1972, it was 72 cents a pound.

With the gap widening each year between the growing support price and the lower market price, the Agricultural Act of 1970 abandoned the formula and fixed the support price at 72 cents a pound for shorn wool and 80.2 cents for mohair. The passage of the Agriculture and Consumer Protection Act of 1973 continued these fixed prices through 1976. The Food and Agriculture Act of 1977 returned to the formula, setting the support price for 1977-81 at 85 percent of the amount calculated by the formula. The Agriculture and Food Act of 1981 revised this computation, basing the support price on 77.5 percent of the amount indicated by the formula for the years 1982-85. The Food Security Act of 1985 continued this formula calculation through 1990. The 77.5 percent was specified for the years 1986 through 1990. The most recent legislation, the Omnibus Budget Reconciliation Act of 1987, modified the percentage to 76.4 percent for 1988 and 1989, reflecting an across-the-board reduction in all commodity support prices. For 1990, the percentage reverts to 77.5 as specified under the Food Security Act of 1985.

Today, the wool program is under scrutiny because of its objectives and its rising costs. The objective of the National Wool Act is to "encourage production of wool at prices that will assure a viable domestic industry in the future." Other stated program justifications include its contribution to national security, general economic welfare, balance of trade, efficient use of resources, and better wool quality. One question is whether the current wool program is needed for a viable domestic industry.

A major concern is the escalation of wool support prices. Since 1983, support prices have more than doubled from the pre-1977 level. In the last decade the support price/wool market price ratio increased, reaching a peak of 2.665 in 1986. The rapid rise of wool prices in 1988 dropped the ratio to 1.29. During the 5 years, 1983-1987, annual Government payments averaged slightly more than $100 million. The record high farm wool price of $1.38 a pound in 1988 caused Government payments to drop to $41 million that year, the lowest since 1980.

The mohair program has had several periods during which no Government payments were made. However, substantial Government payments were made to mohair producers during the past 3 years (1986-88), averaging $42 million a year. Mohair market prices were the lowest in more than a decade while the support price averaged $4.86. The 1989 support level was set at $4.59.

Another concern is whether to continue the payment for unshorn lambs. The National Wool Act requires the Secretary to establish a support price for pulled wool at a level relative to the shorn wool support price so as to "maintain normal marketing practices for pulled wool." Since 1955, this provision has been implemented through payments made per hundredweight of live unshorn lambs marketed. The General Accounting Office concluded that such payments are not necessary to maintain normal pulled wool marketing practices. Further, the payments are very costly to administer, and many feedlots prefer shorn lambs, because they can avoid the costs of pulling and marketing the wool from the unshorn pelt. Elimination of the unshorn lamb payment might cause some producers to shear lambs prior to selling to the feedlot, thus collecting a payment for shorn wool in lieu of the unshorn lamb payment. If so, elimination of the payment would have little effect on program costs as rising wool payments would offset declining unshorn lamb payments. The unshorn lamb payment rate is determined by taking 80 percent of the difference between the shorn wool support price and the average shorn wool market price multiplied by 5 pounds (the amount of wool pulled from the pelt of an average 100-lb. unshorn lamb). The payment rate for 1988 was $1.60 per cwt of live, unshorn lambs sold. The total unshorn lamb payment is estimated at $16.8 million, or 18 percent of total wool program payments. In 1987, unshorn lamb payments were 19 percent of total payments, and in 1986, 18 percent.

Payments authorized by the wool act are not subject to a payment limit. The combined payments for wheat, feed grains, cotton, and rice are limited to $50,000 per person, per year, for all payments except disaster payments, loans, and purchases. If wool and mohair payments are continued, an issue for future legislation is

whether the payments should be subject to a limit, such as that for crops.

Starting in 1985, however, a cap was placed, by regulation, on the per-pound net sales proceeds allowable for the purpose of calculating Government wool and mohair payments. The cap is determined and announced annually by USDA's Agricultural Stabilization and Conservation Service. As in the past, payments are determined by multiplying the dollar value of net proceeds from the sale of shorn wool or mohair by the respective announced payment rate. However, since 1985, the maximum allowable net sales proceeds cap has been set at four times the national average price for the commodity. For example, the national average price for shorn wool in 1988 was $1.38 per pound. Producers who sold their wool for up to $5.52 per pound (4 X $1.38) that year received a Government payment equal to their active net sales proceeds times 0.29 (1988 shorn wool payment rate). However, producers who sold their wool for more than $5.52 per pound had their payment capped at $5.52 times 0.29 or the equivalent of $1.60 per pound.

Effects of Wool and Mohair Programs

The National Wool Act aims to encourage wool production and contribute to economic welfare, efficient resource use, and the balance of trade. How has the wool act affected producers in trying to meet these objectives?

Effects on Producers

Wool production depends on the expected profitability of raising sheep relative to the next best alternative, usually cattle or field crops. Expected sheep profitability depends on expected wool prices, wool support payment rates, lamb and sheep prices, and production costs. Because only 20-30 percent of the production value of a sheep operation comes from wool, a 10-percent increase in wool receipts raises operators' income only 2-3 percent (table 16). Thus, large changes in the expected wool price are required to elicit only modest changes in wool output.

When market prices are below the support price, wool producers expect to receive a price about equal to the

Table 16—U.S. production value of wool, sheep, and lambs and Government payments, 1970-88

					Share of total		
Year	Wool	Sheep and lambs	Price support payments	Total	Wool value	Payments	Wool plus payments
		Million dollars				*Percent*	
1970	57.2	260.4	64.0	381.6	15.0	16.8	31.8
1971	31.4	250.2	102.3	383.9	8.2	26.7	34.9
1972	55.6	271.4	68.0	395.0	14.1	17.2	31.3
1973	120.1	293.7	NP	413.8	29.0	NP	29.0
1974	78.6	272.0	14.5	365.1	21.5	4.0	25.5
1975	53.6	303.3	40.9	397.8	13.5	10.3	23.8
1976	73.1	315.6	7.0	395.7	18.5	17.7	20.2
1977	77.1	320.3	28.9	426.3	18.1	6.8	24.9
1978	76.7	381.6	36.1	494.4	15.5	7.3	22.8
1979	90.5	406.8	30.8	528.1	17.1	5.8	22.9
1980	92.8	402.7	37.5	533.0	17.4	7.0	24.4
1981	103.7	359.1	47.0	509.8	20.3	9.2	29.5
1982	72.8	355.7	71.9	500.4	14.5	14.4	28.9
1983	63.0	356.7	116.9	536.6	11.8	21.7	33.5
1984	75.9	376.5	92.3	544.7	13.9	16.9	30.8
1985	55.7	427.8	103.8	587.3	9.5	17.7	27.2
1986	56.6	443.9	106.9	607.4	9.3	17.6	26.9
1987	77.1	489.1	84.5	650.7	11.8	13.0	24.8
1988[1]	124.6	418.6	41.4	584.6	21.3	7.1	28.4

NP = No payment.
[1]Payments are estimated.

support price. However, it is likely that market prices for wool would be similar with or without the support program. As a result, the producer receives almost the full benefit of the support payments. Total per unit receipts for a producer rise by about the amount of the support payment rate. The wool consumer receives little price benefit because the market price would be about the same with or without the program.

There are two reasons why the program benefits accrue almost entirely to the wool producer. First, and most important, is raw wool imports. U.S. wool prices depend greatly on foreign wool prices, and the extra output caused by the wool program tends to substitute for imported wool, rather than drive down U.S. wool prices. Second, the quantity of wool demanded likely responds more to price changes than does the quantity of U.S. wool produced. This means it takes only a small drop in market price to raise demand enough to absorb the extra production caused by a large support payment.

Producer Benefits and Production Effects

The wool price-support level began a sharp escalation in 1977 and peaked in 1987. However, price-support levels were approximately the same for the 1986 through 1988 seasons. Average levels of market variables during 1986-88 can be used to demonstrate the economic effects of the wool program. The average shorn wool support payment rate was 81 cents a pound, compared with the average market price of 99 cents. World wool prices and the responsiveness of U.S. wool demand to price changes could be expected to have kept average prices near 99 cents a pound in the absence of the program. Thus, the 81-cent average wool payment during 1986-88 raised producer returns by 82 percent. This would likely have boosted wool production by 16 percent. This production change is based on the assumption that a 10-percent rise in per pound producer receipts for wool is associated with a 2-percent rise in wool production. Production averaged 87 million pounds, greasy, during 1986-88. Thus, production under no program would have averaged an estimated 73 million pounds a year.

Program benefits to producers are the support payment rate, 80 cents per pound, times the 73 million pounds that would be produced without a program, or $58 million. Additional benefits come from the returns above production costs on the additional 14 million pounds of wool produced in response to the support payment. The production/price relationship used above can be used to derive this benefit, about $2 million.

Producer benefits total an annual average of $60 million ($58 million plus $2 million, or an average of $800 per recipient of shorn wool program payments), 3 percent less than the average Government payments of $62 million made during 1986-88. The difference--$2 million--is the resource cost of producing the additional 14 million pounds above what it would have cost to purchase imported wool. This $2 million is the average social cost (net welfare loss) of the shorn wool program during 1986-88, and it excludes the administrative costs of the program. The $62 million in payments divided by the additional output of 14 million pounds is $4.43 a pound, the average cost per pound to the taxpayer to raise wool production during 1986-88.

The wool program has modestly raised production and has boosted producer income, compared with no program. Deflated wool returns--real market price plus the average support payment-- declined from the inception of the current wool program through 1976 (table 17 and app. tables 7 and 8). The return to the formula in 1977 for setting the support price level halted the decline. Real market prices continued to drop, but the rising real support payment rate bolstered farm income.

The mohair program has not had as large a cumulative effect on producers as the wool program. Government payments have been far less frequent as the real value of mohair generally has risen since the late 1960's (app. table 9). However, the support level has been above the market price since 1981. Compared with no program, this difference has encouraged production, lowered market prices, raised producer receipts, and increased mohair exports.

Distribution of Producer Benefits

The increase in producer receipts attributed to the wool and mohair programs has varied effects on individual producers. Compared with no program, the rise in income tends to raise the value of land that is especially suited to sheep and goats. This capitalization of the expected program benefits into the value of land increases the wealth of landowners and prevents subsequent owners, who must pay a higher price for the land, from benefiting fully from the program. For part-owners and tenants, the program can lead to higher rents, which transfer program benefits from the renter to the landowner. New entrants into sheep and goat raising also fail to benefit fully; they pay a premium for the ranch which reflects the value of the expected

Table 17—Nominal and deflated wool prices and payments, 1955-88

Year	Market price		Average support payment[1]		Total	
	Nominal	Real[2]	Nominal	Real[2]	Nominal	Real[2]
			Cents per pound, greasy			
1955	42.8	157.3	20.4	75.0	63.2	232.3
1960	42.0	135.9	19.9	64.4	61.9	200.3
1965	47.1	139.4	15.2	45.0	62.3	184.4
1970	35.5	84.5	36.2	86.2	71.7	170.7
1975	44.7	75.4	32.6	55.0	77.3	130.4
1976	65.7	104.1	6.0	9.5	71.7	113.6
1977	72.0	107.0	26.3	39.1	98.3	146.1
1978	74.5	103.2	34.7	48.1	109.2	151.3
1979	86.3	109.8	29.1	37.0	115.4	146.8
1980	88.1	102.8	35.5	41.4	123.6	144.2
1981	94.5	100.5	42.8	45.5	137.3	146.0
1982	68.4	68.4	67.8	67.8	136.2	136.2
1983	61.3	59.0	113.6	109.3	174.9	168.3
1984	79.5	73.8	96.6	89.7	176.1	163.5
1985	63.3	57.1	118.1	106.5	181.4	163.6
1986	66.8	58.7	126.1	110.7	192.9	169.4
1987	91.7	77.9	99.8	84.8	191.5	162.7
1988[3]	138.0	114.0	46.4	38.4	184.4	152.4

[1]Payment per pound produced, not per pound marketed. [2]Deflated using gross national product deflator, 1982 = 1.0. [3]Payments are estimated.

program benefits. In 1982, 59 percent of the 101,373 operations owning sheep and lambs were full-owners, 31 percent were part-owners, and 10 percent were tenants. Of the 28,000 operations owning goats, 69 percent were full-owners, 24 percent were part-owners, and 7 percent were tenants.

Because support payments are based on sales volume, large operations receive greater payments than small operations. Table 18 shows that most price support payments for shorn wool go to a very small number of producers. The average payment per recipient for shorn wool was about $1,100 in 1986. However the large producers, those receiving 72 percent of the payments, received an average payment of about $14,800.

Mohair payments also show a pattern similar to shorn wool (table 18). The average U.S. payment per recipient was around $3,500 in 1986. However, recipients accounting for 86 percent of the payments had an average payment of $23,000.

Table 18—Shorn wool and mohair producers and support payments, 1986

Payment	Payees		Payment	
	Number	Share	Amount	Share
	Thousand	Pct.	*Mil. dol.*	Pct.
Shorn wool:				
Less than $100	24.5	33	1.33	2
$100-$999	40.0	54	12.65	15
$1,000-$2,999	5.7	8	9.59	11
$3,000 and greater	4.1	5	60.82	72
Total	74.3	100	84.39	100
Mohair:				
Less than $5,000	10.5	87	5.8	14
$5,000 and greater	1.6	13	36.5	86
Total	12.1	100	42.3	100

Effects on Consumers

The effect of the wool program on wool consumers is likely negligible. Program effects on consumers are measured by the changes in prices paid and quantities consumed that are attributable to the program. The small size of the U.S. wool market in relation to the world market and the substantial volume of U.S. wool imports suggest that U.S. wool prices are more related to world wool prices than to the support prices. The additional U.S. wool production caused by the support price exceeding market price probably has only a small

long-term effect on U.S. wool prices and likely causes U.S. wool to replace imported wool in U.S. textile mills. However, consumers benefit to the extent that the higher output causes a short-term drop in U.S. wool prices.

Lamb and mutton consumers benefit from the wool program. The increase in the number of sheep caused by wool program payments raises the supply of lamb and mutton. Because only 10 percent of the lamb supply is imported and less is exported, the greater supply lowers U.S. lamb and mutton prices, providing consumers with more at a lower price than if there were no wool program. From the perspective of meat consumers, the benefit is quite small because lamb and mutton's share of the meat market is so small.

The mohair program has benefited mohair consumers. U.S. production changes affect both U.S. and world mohair prices. Since 1981, the mohair support price has exceeded market price, causing greater mohair production than if there were no price support program. The higher output has lowered U.S. mohair prices, enabling U.S. consumers to buy more at lower prices.

Unlike programs for other commodities, the wool and mohair price-support programs do not have the potential to make consumers worse off. Programs that support commodities through nonrecourse loans and production control can cause consumer prices to exceed levels that would prevail under no program. Wool and mohair are supported solely with direct payments, which only have the potential to raise production and lower consumer prices.

The effect on final consumers of any decline in raw wool and mohair prices caused by the program is lessened because textile products are highly processed. A typical wool sport coat selling for $250 may contain only 4 pounds of raw wool, greasy, with farm value of about $5. A mohair sweater selling for $250 may contain only a pound of raw mohair, greasy, having a farm value of $3. Because they account for so little of final product value, changes in raw fiber prices are undiscernible to the final purchaser for a wide variety of textile items.

While the wool program may be of some benefit to consumers, the tariffs charged on imported raw wool and wool textiles are not. The tariffs raise the U.S. price of raw wool paid by textile mills and raise the price of manufactured wool textiles. Thus, wool price-support payments are lower than if there were no tariffs, and changes in tariffs affect the size of wool program payments. The tariff on raw wool averages 10 cents a pound, and the tariffs on wool textiles vary by textile item and country of origin. During 1986, the average tariff on woven wool fabrics imported by the United States was 27 percent of the value of the imports (foreign port value, not loaded on ships). This compares with an average tariff of 13 percent for woven fabrics made with manmade fibers and 11 percent for cotton. Thus, wool tariffs raise prices and reduce consumer welfare. However, the tariffs provide a very significant level of protection for the domestic wool industry, reduce Government expenditures on the wool program, and raise revenue that more than offsets wool program expenditures. Tariff revenue on wool textiles was $417 million in 1987 and $422 million in 1988.

Effects on Taxpayers

Taxpayers bear the cost of Government expenditures on the wool and mohair program. (Table 15 shows support payments for calendar year production. A more complete accounting of program costs by fiscal year is in app. table 6). The Government expenditures are primarily a transfer of income from taxpayers to wool producers and mohair producers and consumers. As indicated in the section on producer effects, the taxpayer costs slightly exceed the benefits received by wool and mohair producers and consumers.

Support payments account for almost all wool and mohair program costs. Payments per pound of U.S. production have risen in recent years, reaching a record $1.26 a pound for wool in 1986 (table 19). Nominal and real payments per taxpayer fell from the late 1960's through the 1970's. Despite rising in the early 1980's, inflation-adjusted program payments per taxpayer through 1988 were still well below payments in the late 1960's and early 1970's.

Total wool and mohair program costs to taxpayers were about $131 million during fiscal 1988. Total net expenditures of the Commodity Credit Corporation for price-support and related activities for all commodities were $12.5 billion. Thus, the wool and mohair program accounted for about 1 percent of public expenditures on price-support and related programs during 1988.

Additional Readings

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Table 19—Wool support payments per pound produced and per taxpayer, 1965-88

Year	Payment per pound produced		Payment per taxpayer[1]	
	Nominal	Real[2]	Nominal	Real[2]
	Cents per pound, greasy		*Cents per person*	
1965	15.2	45.0	45.9	135.8
1966	12.0	34.3	34.6	98.9
1967	27.3	76.0	74.6	207.8
1968	27.5	72.9	69.1	183.3
1969	27.7	69.6	62.7	157.5
1970	36.2	86.2	77.3	184.1
1971	59.4	133.8	121.2	273.0
1972	40.4	86.9	78.1	168.0
1973	NP	NP	NP	NP
1974	10.6	19.6	15.8	29.3
1975	32.6	55.0	43.6	73.5
1976	6.0	9.5	7.3	11.6
1977	26.3	39.1	29.2	43.4
1978	34.7	48.1	35.3	48.9
1979	29.1	37.0	29.3	37.3
1980	35.2	41.1	35.1	41.0
1981	42.4	45.1	43.3	46.1
1982	67.7	67.7	65.2	62.8
1983	113.6	109.3	104.8	100.9
1984	96.7	89.8	81.3	75.5
1985	118.0	106.4	89.9	81.1
1986	126.0	110.6	90.7	79.6
1987	99.8	84.8	70.5	59.9
1988	46.4	38.4	34.0	28.1

NP = No payments.
[1]The number of taxpayers is assumed to be the number of people in the labor force. [2]Deflated using gross national product deflator, 1982 = 1.0.

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Glossary

Cost of Production. The sum, measured in dollars, of all purchased inputs, allowances for management, and rent that is necessary to produce farm products. Cost of production statistics may be expressed as an average per animal, per acre, or per bushel for all farms in an area or in the country.

European Community (EC). An organization established by the Treaty of Rome in 1957 and also known as the European Economic Community and the Common Market. Originally composed of 6 European

nations, it has expanded to 12. The EC attempts to unify and integrate member economies by establishing a customs union and common economic policies. Member nations include the original six countries of Belgium, West Germany, France, Italy, Luxembourg, and the Netherlands, as well as Denmark, Greece, Ireland, Portugal, Spain, and the United Kingdom.

General Agreement on Tariffs and Trade (GATT). An agreement, originally negotiated in Geneva, in 1947 among 23 countries, including the United States, to increase international trade by reducing tariffs and other trade barriers. This multilateral agreement provides a code of conduct for international commerce. GATT also provides a framework for periodic multilateral negotiations on trade liberalization and expansion. The eighth and most recent round of negotiations began in Punta del Este, Uruguay, in 1986. Currently, 105 nations are participating in the talks, including most of the industrialized market economies, most of the less developed countries, and several centrally planned economies in Eastern Europe.

Grease mohair. Mohair as it comes from the Angora goat or the kid of an Angora goat before applying any process to remove the natural oils or fats.

Grease wool. Wool as it comes from the sheep or lambs before applying any process to remove the natural oils or fats.

Lamb. A young ovine animal which has not cut the second pair of permanent teeth. The term includes animals referred to in the livestock trade as lambs, yearlings, or yearling lambs.

Mohair. The hair of the Angora goat and also includes the hair of a kid of an Angora goat.

Mohair support payment rate. The percentage required to bring the national average price received by all producers for the sale of mohair up to the support price.

Parity price. A measurement of the purchasing power of a unit (bushel, pound, or hundredweight) of farm product. Parity was originally defined as the price that gives a unit of a commodity the same purchasing power today as it had in the 1910-14 base period. In 1948, the parity price formula was revised to allow parity prices for individual commodities to reflect a more recent relationship of farm and nonfarm prices by making the base price dependent on the most recent 10-year average price for commodities. Except for wool, mohair, and certain minor tobaccos, parity is not currently used to set price-support levels for any program commodities. However, parity remains part of a permanent legislation.

Shorn mohair. Grease mohair sheared from a live Angora goat or the kid of an Angora goat. Shorn mohair does not include pelts or mohair removed from pelts, scoured, or dyed mohair or yarn, skeins or other terms which identify the mohair as being other than in its natural greasy state.

Shorn wool. Grease wool sheared from live sheep or lambs, including black wool, tags, crutchings, and murrain or other wool removed from dead animals. Shorn wool does not include pelts or wool removed from pelts, scoured, carbonized, or dyed wool or yarn, skeins or other terms which identify the wool as being other than in its natural greasy state.

Tariffs. Taxes imposed on commodity imports by a government. A tariff may be either a fixed charge per unit of product imported (specific tariff) or a fixed percentage of value (ad valorem).

Unshorn lambs. Lambs which have never been shorn.

Wool price-support payment rate. The percentage required to bring the national average price received by all producers for the sale of shorn wool up to the support price.