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Wool and Mohair

Background for 1985 Farm Legislation

- STRUCTURE OF THE WOOL AND MOHAIR INDUSTRIES
- TRENDS IN CONSUMPTION AND TRADE
- PRICES, COSTS, AND RETURNS
- HISTORY OF WOOL AND MOHAIR PROGRAMS
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ABSTRACT

Wool and mohair have been declining industries. Sheep inventories are a fifth of their World War II level; goat numbers are a third of their mid-1960's level. Economic recession and ample global supplies of wool and mohair lowered prices of these fibers and reduced net returns of farmers in the early 1980's. Government payments to wool producers were record high in 1983. Policymakers have had limited control over wool program costs given the formula-based Government support price, the trend of declining textile market share, rising raw wool and wool textile imports, stagnant lamb and mutton consumption, and the dominance of Australia and New Zealand in the world wool market. Issues for 1985 include whether to continue the program, and if so, the level and method of adjusting support prices.

Keywords: costs and returns, exports, farm programs, imports, mohair, program effects, textile mill use, wool.

FOREWORD

In 1985, Congress will consider new farm legislation to replace the expiring Agriculture and Food Act of 1981. In preparation for these deliberations, the Department of Agriculture and many groups throughout the Nation are studying the experience under the 1981 law and preceding legislation to see what lessons can be learned that are applicable to the 1980's. The Economic Research Service has prepared a series of background papers summarizing in a nontechnical form the experience with various farm programs and the key characteristics of the commodities and the farm industries which produce them. They may not answer all of the questions but will provide a beginning. For more information, see the Additional Readings listed at the end of the text.

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INTRODUCTION

The price support program for wool and mohair has been in effect since 1955. The Agriculture and Food Act of 1981 reauthorized the program through December 31, 1985. Experience with its provisions and knowledge of economic conditions in the wool and mohair markets will provide the basis for assessing alternative programs for the future. This report describes some of these experiences and provides some of that knowledge.

U.S. wool and mohair production has fallen dramatically. Wool's share of U.S. fiber use was 10 percent in 1950 and 2 percent in 1983. These trends have called into question a basic objective of the program--encouraging wool production and consumption. Accordingly, this report examines the intended beneficiaries of the program: those who produce and consume wool and mohair. Factors which have limited wool and mohair production are also examined.

Because U.S. wool demand and supply are small in size in comparison with the world wool market, and because raw wool imports account for about half of U.S. textile mill use of wool, U.S. prices hinge on foreign developments. Likewise, 90 percent of U.S. mohair is exported, so foreign demand for U.S. mohair is the key to mohair prices. In any year, U.S. prices--and consequently Government program costs--depend more on foreign developments than on U.S. production changes. Thus, this report examines the foreign sector for wool and mohair and establishes the links between U.S. and foreign markets.

Finally, this report traces the history of the wool and mohair program, showing that Government attempts to encourage wool production have been in conflict with the declining trends in U.S. production and use. Program effects on producers, consumers, and taxpayers are examined.

THE STRUCTURE OF THE WOOL INDUSTRY

Annual U.S. wool production is equivalent to only about one-tenth of 1 percent of the value of principal crops produced in the United States, and sheep marketings are about the same fraction of the value of total livestock marketings. Sheep and wool are produced in all States, but significant output is confined to two regions--the territory wool States and the fleece wool States. About 75 percent of the sheep are in Texas, South Dakota, the Rocky

Mountains, and the Pacific Coast States. Wool from these areas is called "territory" wool. These finer grades are used to make better quality apparel. Most other sheep are in Virginia, West Virginia, Pennsylvania, States north of the Ohio River, and the Great Plains area. Wools from these areas, known as "fleece" wool, are medium grades used to make coats, blankets, sweaters, and so on.

Wool Production

The U.S. sheep inventory declined from a record high 56 million head in 1942 to a record low 11.4 million in 1983. The drop resulted from declining wool demand by the U.S. textile industry as manmade fibers became pervasive and from reduced consumption of lamb and mutton. Since 1970, the number of sheep and lambs has been cut nearly in half, average flock size has fallen, and there are 30 percent fewer operators with sheep (table 1).

Most of the revenue from raising sheep comes from the sale of meat. Only about a third of cash receipts comes from wool. Consequently, changes in wool prices have only a small effect on the number of sheep and the level of wool production. The failure of lamb and mutton to become a more regular part of the U.S. consumers' diet is a critical factor in the drop in sheep numbers. In 1970, lamb and mutton accounted for 2.9 pounds out of the 200 pounds of meat consumed per person. In 1983, lamb and mutton were down to 1.5 pounds out of the total of 210 pounds consumed.

The long downward trend in sheep numbers was interrupted in the late 1970's. The reduction in livestock numbers during 1974-75 caused by rising grain prices and economic recession led to higher meat prices and herd rebuilding in the later 1970's. Lamb prices rose 40 percent and wool prices 30 percent between 1976 and 1979. However, steep drops in lamb prices beginning in 1981 and in wool beginning in 1982 halted the recovery in sheep numbers.

Table 1--Numbers of sheep and operators

Year	Sheep and lambs on January 1	Operations with sheep	Average flock size
	Million head	Thousand	Head per operator
1970	20.4	179.6	114
1975	14.5	129.6	112
1980	12.7	119.9	106
1981	12.9	125.6	103
1982	13.0	128.1	101
1983	12.0	126.5	95
1984	11.4	---	---

--- = Not available.

Wool production has followed the decline in sheep numbers, with the production drop exacerbated slightly by a drop in productivity (table 2). Shorn wool production in 1983 was about 100 million pounds, less than a third of the record 388 million set in 1942. U.S. average fleece weights of about 8 pounds are low relative to the yields in the world's two largest wool producing countries, Australia and New Zealand, which average about 11.5 pounds. Fleece weights in the USSR, the third largest producer, have averaged 7.3 pounds in recent years.

Today, shorn wool accounts for essentially all of U.S. wool production, but that has not always been the case. In the 1940's and 1950's, 10-15 percent of total production was "pulled" wool, wool pulled from the pelts of slaughtered lambs (appendix table 1). By 1983, pulled wool production was estimated at only 1 million pounds, greasy, 1 percent of total wool production. The drop reflects the growing demand for the pelts with the wool intact. These sheepskins are used for everything from coat liners to automobile seat covers.

The size of sheep herds varies greatly. The 1978 Census of Agriculture indicates that only 2 percent of farms and ranches with sheep had a herd size of over 1,000 producing ewes 1 year old or older. But, 47 percent of all such ewes were in herds of 1,000 or more. At the other end of the scale, 87 percent of farms and ranches with sheep had between 1 and 99 head. Twenty-one percent of ewes a year old 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. Flock management is often the sole or primary responsibility of the operator as indicated in 1980 data which show 65 percent of operators' income came from sheep, 24 percent from beef cattle, and 11 percent from other livestock and crops. The typical flock size in the fleece area is 20 to 40 sheep and is often only a small part of the farming operation, along with cattle and hog raising and crop production.

Table 2--Sheep shorn and wool production

Year	Sheep shorn	Shorn wool production	Average fleece weight
	Million head	Million pounds, greasy 1/	Pounds
1970	19.2	161.6	8.43
1975	14.4	119.5	8.30
1980	13.6	105.4	7.95
1981	13.5	109.7	8.14
1982	13.2	105.6	8.03
1983	12.6	100.3	7.93

1/ Grease basis is wool directly from the sheep. It has not been cleaned and scoured.

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 towards the territory States. In the early 1950's, 65-70 percent of all sheep were in the territory States; in recent years, this figure has 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 high 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 the constant presence of a sheepherder and often the assistance of two or three dogs. Sheep are small and very passive, thus they 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 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, 1984, was 11.4 million head, 5 percent below a year earlier, and the lowest on record. Consequently, 1984 wool production will drop again. Part of the inventory decline resulted from the drought in Texas during 1983 as that State's inventory fell 12 percent.

Domestic Wool Use

U.S. wool use has declined dramatically since World War II (appendix 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 127 million during the last 5 years.

Factors Causing Consumption Trends

Price and performance explain the success of manmade fibers in penetrating the wool market. Although wool has wrinkle resistency 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. They depend on economic forces affecting sheep numbers (such as lamb prices) in addition to forces affecting overall textile demand. Because half of the wool consumed by U.S. mills is imported, changes in foreign production and demand can cause substantial swings in U.S. prices.

Table 3--Average flock size, 1983

Territory wool States		Fleece wool States	
Ariz.	877	N. Dak.	106
Wyo.	768	Kans.	78
N. Mex.	375	Nebr.	57
Nev.	355	Okla.	48
Colo.	343	Ohio	36
Tex.	233	Mich.	36
Utah.	223	Iowa	34
Mont.	198	Minn.	33
Calif.	159	Mo.	33
Idaho	156	W. Va.	29
S. Dak.	136	Va.	28
Ore.	84	Wisc.	24
Wash.	32	Ind.	21
		Penn.	21
Region average	206	Ill.	20
		Region average	36

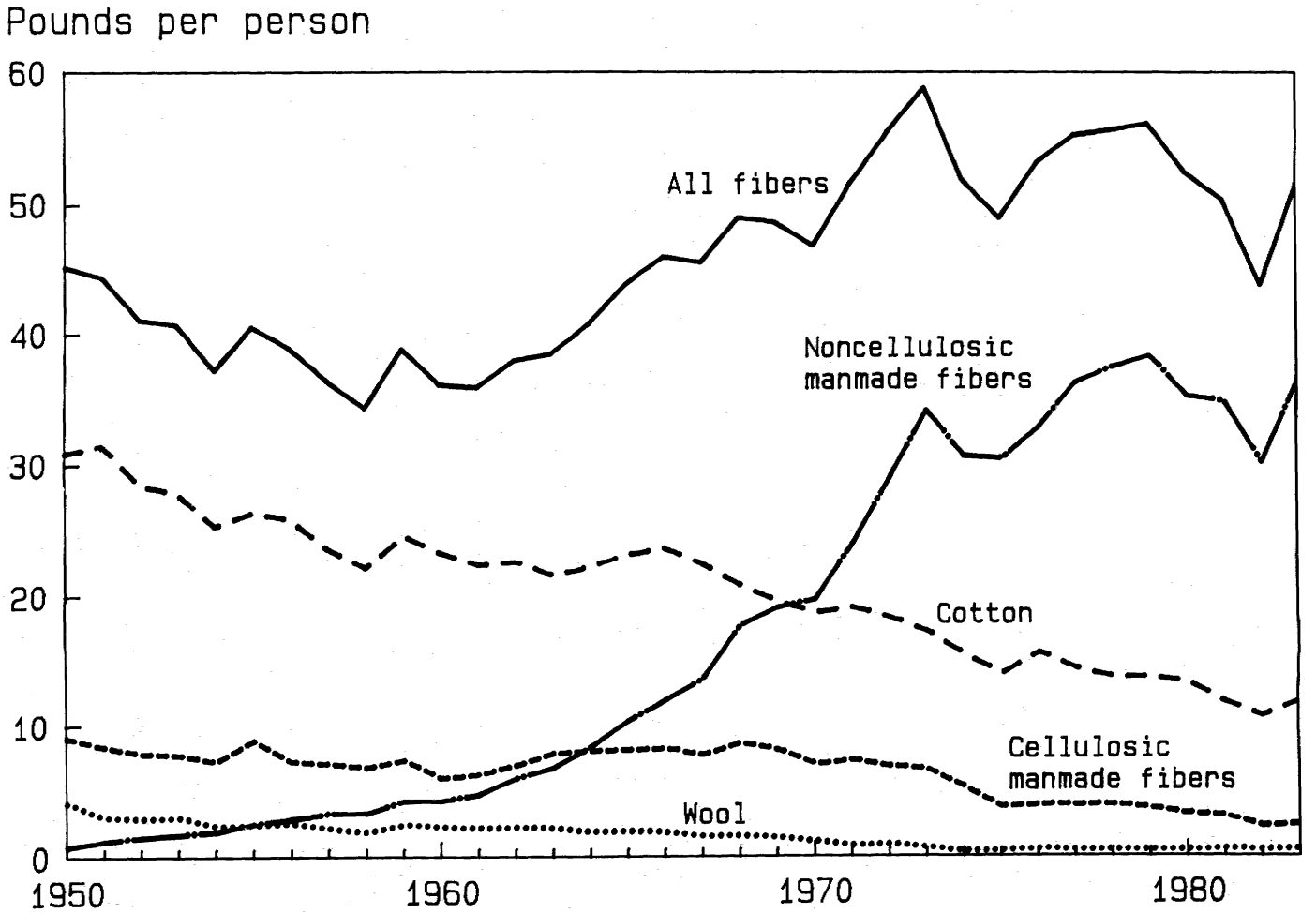
Table 4--The U.S. wool market

Item	1980	1981	1982	1983
Sheep shorn (mil.)	13.3	13.5	13.2	12.6
Yield (lbs./head, grease)	8.0	8.1	8.0	8.0
		Million pounds, clean 2/		
Beginning stocks (Jan. 1)	46.8	50.6	44.6	46.0
Production	56.4	58.6	56.5	53.7
Imports	56.5	74.3	61.4	78.1
Supply 1/	174.3	183.5	163.1	181.1
Mill use	123.4	138.6	115.7	138.1
Exports	.3	.3	1.4	1.0
Total use	123.7	138.9	117.1	139.1
Carryover stocks	50.6	44.6	46.0	42.0
		Cents per pound		
Avg. producer price	88.1	94.4	68.5	61.3
Support price	123.0	135.0	137.0	153.0

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.

Figure 1.

Per Capita Mill Consumption of Major Fiber Types, 1950-1983



In contrast, the manmade fiber production process is continuous; it does not depend on biological lags and once or twice a year shearings. 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 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. Many 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 needs 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 products 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. There are two textile production processes that 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 the coarser fibers 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.

Table 5--U.S. mill consumption of raw wool

System	1977	1978	1979	1980	1981	1982	1983
			Million pounds, clean				
Woolen	48.6	53.0	57.4	57.0	64.5	48.3	60.7
Worsted	46.9	49.2	49.2	56.4	63.3	57.5	66.0
Subtotal	95.5	102.2	106.5	113.4	127.8	105.9	126.7
Carpet	12.5	13.0	10.5	10.0	10.9	9.8	11.4
Total	108.0	115.3	117.0	123.4	138.6	115.7	138.1

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 suitings.

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 almost all wool products that are knit are examples of woolens. 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, inexpensive carpet. In the early 1980's, carpet use of wool was about 11 million pounds a year, compared with 170 million averaged during the decade following World War II.

Noncarpet use of wool has been about 120 million pounds a year in the early 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 overall trend in wool's competitive position within the U.S. fiber market is indicated in table 6. Wool accounted for 10 percent of end-use fiber consumption in the United States in 1950. Cotton and wool combined--natural fibers--had nearly 80 percent of the market. By 1983, the natural fiber share had dropped to less than 30 percent, and wool's share was 2 percent.

Wool is not expected to experience any significant improvement in its share of the textile market through the 1980's. 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.

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, less developed 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 appendix table 5). Of the wool textiles purchased by U.S. consumers during 1983, about four-fifths were foreign produced or made from imported raw wool. In recent years, 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 1979-83, Australia and New Zealand were the source of about 70 percent of imported raw wool. South Africa, Argentina, and the United Kingdom together constituted about 20 percent.

Table 6--U.S. fiber consumption 1/

Year	Cotton	Manmade fiber	Wool	Total
		Pounds per person		
1950	29.4	9.5	4.6	43.5
1960	23.4	10.0	3.0	36.4
1970	19.9	27.8	1.7	49.3
1980	14.6	37.4	.9	53.0
1981	14.4	37.9	1.0	53.4
1982	13.5	33.6	.9	48.0
1983	15.8	40.9	1.1	57.9

1/ Raw fiber equivalent of end-use consumption of textiles.

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

Item	1977	1978	1979	1980	1981	1982	1983
			Million pounds, clean				
Raw wool:							
Production	58.5	55.1	56.0	56.4	58.6	56.2	53.1
Imports	53.0	50.4	42.3	56.5	74.3	61.4	78.1
Mill use	108.0	115.3	117.0	123.4	138.6	115.7	138.1
Wool textiles: 1/							
Imports	116.6	129.4	109.5	103.2	113.6	112.2	149.8
Exports	13.0	9.5	12.5	14.0	12.3	11.9	20.8
Domestic wool							
Consumption 2/	211.5	235.1	214.1	212.7	239.9	215.1	267.1

1/ Raw fiber equivalent. 2/ Mill use plus textile imports less textile exports.

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 is produced in these grades. 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, greasy. The duties provide some restraint on imports. However, 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, the dramatic appreciation of the U.S. dollar has caused a surge in most U.S. imports, such as textiles, and a drop in commodity exports. (However, the U.S. dollar's appreciation has been much smaller against the currencies of Australia and New Zealand, the major sources of raw wool imports, than for other developed countries). 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.

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 1983, imports were 150 million equivalent pounds of raw wool, nearly triple U.S. raw wool production. Major sources of these imports, ranked by volume, were 1) Hong Kong, 2) Italy, 3) South Korea, 4) United Kingdom, 5) China, and 6) Japan.

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, a result of higher domestic textile production costs.

The World Wool Market

U.S. demand, supply, and policy changes do not significantly affect world markets for wool, since the U.S. wool industry is small. Australia is the dominant producer and exporter (table 8 and appendix tables 10 and 11). In 1983, U.S. sheep numbers and wool production accounted for only 1.1 percent and 1.6 percent of the respective world totals.

World wool production declined in the early 1970's, then grew 13 percent between 1972 and 1980, and has been near 1981's 6.3 billion pounds, greasy, since then. For countries with market-oriented economies, production dropped 7 percent between 1968-72 and 1982. Australia, Argentina, and South Africa had general declines in production, while New Zealand increased production.

The centrally planned countries increased output over the same period by 25 percent, and, by 1983, accounted for more than a fourth of world production. Virtually all of the production growth has come in the Soviet Union and China--countries which export very little raw wool but are major importers.

The Soviet Union is the largest consumer of wool, accounting for about a fifth of world mill use of wool during 1982. China was second with about a tenth of world use. Soviet use has been growing slowly in recent years, but Chinese use more than doubled between 1978 and 1982. 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 35 percent of world wool use in 1982, down slightly from recent years, mainly reflecting 1982's recession.

World raw wool exports have declined as a share of production, from 3.2 billion pounds in 1966--about 50 percent of world production--to 2.6 billion by 1982--about 40 percent. The drop reflects greater trade in processed wool and textile products; increasing wool production in importing countries, such as the Soviet Union and China; and falling consumption in the industrialized wool-importing countries, such as the EC and Japan.

Table 8--World, top three countries, and the United States: sheep, wool production, and wool trade

Item	1980	1981	1982	1983
		Million		
Sheep numbers 1/	1,059	1,068	1,088	1,085
Australia	136	134	137	133
USSR	144	142	142	142
New Zealand	69	70	70	70
United States	13	13	13	12
		Million pounds, greasy		
Wool production	6,177	6,299	6,373	6,391
Australia	1,563	1,543	1,581	1,546
USSR	1,054	1,023	1,063	1,045
New Zealand	787	840	800	818
United States	106	111	107	101
Wool exports	2,642	2,730	2,582	---
Australia	1,250	1,324	1,238	1,196
New Zealand	629	618	628	710
Argentina	177	222	177	144
United States	1	1	3	2
Wool imports 2/	2,495	2,505	2,446	---
Japan	387	369	395	---
USSR 3/	274	278	289	---
France	258	274	246	---
United States	73	96	80	100

--- = Not available.

1/ China is third in number of sheep, but is not listed because production and trade are small relative to sheep inventory. 2/ Retained imports; excludes imports for scouring and re-export; gross imports for USSR. 3/ Clean.

The share of world imports claimed by the major industrial countries--the United States, the EC, and Japan--has declined from a combined total of 82 percent in 1966 to 57 percent in 1982 (table 9). The growth markets for raw wool have been the Soviet Union and the East Asian textile exporters--Taiwan, South Korea, Hong Kong, and China. Since 1966 the Soviet import share nearly tripled, while the East Asian share expanded nearly twelvefold. 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 manmade fiber production capacity.

World raw wool exports primarily originate in southern hemisphere countries, destined for the industrialized countries of the northern hemisphere. Four countries--Australia, New Zealand, Argentina, and South Africa--account for 80 percent of world raw wool exports. Market shares have been relatively stable over the past 15 years, with Australia exporting 45 to 50 percent of world exports followed by New Zealand (19 to 23 percent), Argentina (6 to 8 percent), and South Africa (4 to 7 percent).

World wool prices are a major determinant of U.S. prices (table 10). Australia, New Zealand, and South Africa influence world price 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 for which bids do not reach minimum reserve prices, which are set annually. In 1982/83, the AWC bought a quarter of the offerings. 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. Since 1974, when the minimum reserve price system was introduced, the AWC has been a significant seller only when market prices have exceeded reserve prices by 15 cents a pound, clean, or more.

Table 9--World raw wool imports and import market shares

Year	World imports	Import share				
		U.S.	EC-9 1/	Japan	USSR	East Asian textile exporters 2/
	Mil. lbs.	Percent				
1966	3.23	11.7	50.9	19.6	4.2	1.0
1971	3.04	5.3	47.1	22.3	6.2	1.9
1976	2.90	2.6	47.2	20.5	8.3	3.4
1981	2.54	3.8	41.8	14.7	11.1	9.3
1982	2.44	3.3	37.0	16.2	11.8	11.6

1/ Excludes Greece, admitted as tenth member in 1981. 2/ Hong Kong, South Korea, Taiwan, and China.

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 are probably 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

Prices

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). However, wool prices fluctuated sharply during the 1970's, as did other commodity prices. Prices ranged from 19 to 86 cents a pound. Imported raw wool and wool textiles accounted for an increasing share of U.S. wool use, which magnified the impacts of foreign developments on the U.S. market.

Because the U.S. exports little wool and produces only half 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. At the end of 1979 and 1980, stocks were an ample 47 and 51 million pounds--about 5 months mill use--yet prices set successive records of 86 and 88 cents a pound. In 1982, ending stocks were 46 million pounds, up only 3 percent from 1981, but prices dropped 27 percent. In 1979 and 1980, foreign wool production was fairly stable, but strong demand reduced world stocks and pulled up prices. In 1982, world production rose slightly, recession dampened foreign and U.S. use, and world stocks rose.

Table 10--U.S. and Australian wool prices 1/

Item	1978	1979	1980	1981	1982	1983
			U.S. cents per pound			
United States 1/	1.90	2.18	2.45	2.78	2.47	2.12
Australia 2/	2.34	2.77	3.09	3.16	3.00	2.74
Duty	.255	.255	.20	.15	.10	.10

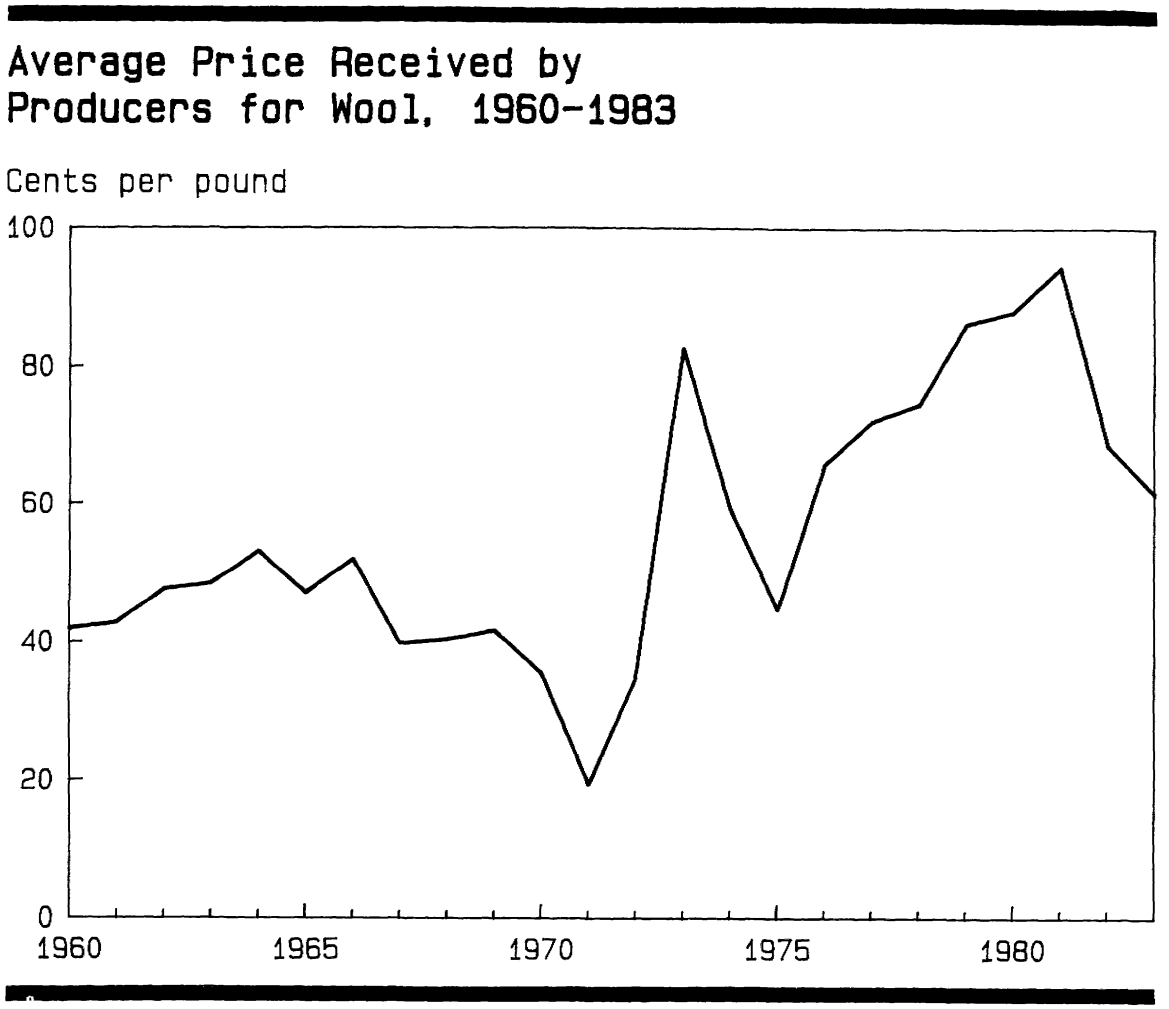
1/ Graded territory 64's. 2/ Australian 64's, type 62; loaded on trucks in South Carolina, includes duty.

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 nearly $51 in 1980 but dropped during 1981-83 (table 11). 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 slaughtered unshorn lambs) accounted for around 34 percent or less of gross receipts. Because of lower sheep prices in 1981-1983, revenue from meat and wool sales was often insufficient to cover cash expenses.

Total cash expenses per ewe increased from about $37 to $42 during 1980-83. Inflationary pressures in the economy affected most input costs. Three items constituted over 70 percent of total cash expenses during 1980-83: interest, hired labor, and feed. Interest was the largest single expense, varying from about 21 percent in 1980 to 25 percent in 1982. The second largest expense was hired labor, which averaged slightly less than 15 percent each year. Total feed expenses ranged from 37 percent in 1980 to 32 percent in 1982.

Figure 2.



Another important factor which raises overall costs is death loss (which is taken into account in table 11). In 17 Western States, 12.4 percent of the lamb crop was lost after docking in 1980. Predators caused about 60 percent of the loss. Weather, disease, and poison plants added another 23 percent, and other known and unknown causes accounted for the rest. These estimates exclude stock sheep losses, placed at 10 percent, and lamb losses prior to docking, which were estimated at 5 percent for the five Western States.

The continued effect of lower receipts and rising costs caused average net returns after paying cash expenses to drop from nearly $14 to $5 per ewe between 1980 and 1983. Without a Government income support program, the average sheep producer would have only broken even in 1981 and operated at a loss during 1981 to 1983. Total revenue only from the sales of meat and wool less cash expenses declined from about $9 in 1980 to a loss of over $4 in 1983. Thus, total wool cash receipts, primarily from payments, have become more important to sheep producers, increasing from 21 percent of all cash receipts in 1980 to 34 percent in 1983.

THE STRUCTURE OF THE MOHAIR INDUSTRY

Mohair is the fleece of the Angora goat. Virtually all 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. In 1978, the last year State inventory and sales data were available, Texas accounted for 88 percent of U.S. Angora goats and 92 percent of mohair production. Arizona and New Mexico were a distant second and third, respectively, in both categories.

Table 11--U.S. sheep production costs, average per ewe

Item	1980	1981	1982	1983
			Dollars	
Cash receipts:				
Meat	39.75	32.76	33.14	30.86
Wool	6.55	7.45	6.28	6.72
Shorn wool payment	3.52	4.61	6.28	7.75
Unshorn lamb payment	.76	.88	1.50	1.56
Total	50.58	45.70	47.20	46.89
Wool share (percent)	21.41	28.32	29.79	34.19
Cash expenses:				
Fixed	10.28	12.63	13.61	12.75
Variable	26.77	27.98	28.53	29.25
Total	37.05	40.61	42.14	42.00
Receipts less cash expenses	13.53	5.09	5.06	4.89
Net receipts from sales of meat and wool	9.25	-.09	-2.72	-4.42
Wool support payments	4.28	5.49	7.78	9.31

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 (appendix 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 (table 12). On January 1, 1984, the total Texas goat inventory was 1.45 million head, 2 percent above a year earlier.

The 1978 Census of Agriculture provides data on the average size of a goat-producing operation. There were 1,865 farms with a total of 920,800 Angora goats, or 494 head per farm. Texas had 77 percent of the farms with an average of 558 goats per farm.

The trend in mohair production has reflected the trend in the number of goats clipped, dropping sharply since 1965. However, the production per goat clipped has increased steadily 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 7.8 pounds in 1983.

Table 12--The U.S. mohair market

Item	1980	1981	1982	1983
Goats clipped (mil.)	1.24	1.30	1.33	1.36
Yield (lbs./head, grease)	7.1	7.6	7.5	7.8
	Million pounds, clean 3/			
Beginning stocks (Jan. 1)	1.72	1.88	2.29	1.42
Production	7.04	7.92	7.60	8.06
Imports	.45	.23	.02	.04
Supply 1/	8.80	10.22	9.77	10.50
Domestic use 2/	.70	.80	.60	.70
Exports	6.22	7.12	7.74	9.65
Total use	6.92	7.92	8.34	10.35
Carryover stocks	1.88	2.29	1.42	.15
	Dollars per pound			
Avg. producer price	3.50	3.50	2.55	4.05
Support price	2.90	3.72	3.98	4.63

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 80 percent of grease basis before 1982 and 76 percent thereafter.

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 600,000 and 800,000 pounds, which is only 8-10 percent of U.S. mohair production. Exports are the major market for U.S. mohair (appendix 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 1982, U.S. per capita consumption of all fibers was 48 pounds. Per capita consumption of U.S. mohair was only three-thousandths of a pound. Mohair is a specialty fiber and its price--6 times greater than wool, cotton, and polyester--limits wide acceptance.

Mohair is generally blended with other fibers when producing a textile. Rarely used alone because of its brittleness, it is most often blended with wool, and to a lesser extent manmade fibers, such as acrylic. Because manmade fibers and high-quality luster 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.

The World Mohair Market

The major mohair-producing countries are South Africa, the United States, and Turkey, with smaller quantities produced in Argentina, Lesotho, Australia, and a few other countries where it is mainly used for handweaving (table 13).

South African production--about 40 percent of world production--declined in the mid-1960's, but has trended up during the 1970's and 1980's. South Africa produces a premium mohair and has the world's highest yields. Production is marketed though 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 early 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. Argentine production

Table 13--World mohair production

Country	1980	1981	1982	1983 1/
		Million pounds, greasy		
United States	8.8	9.9	10.0	10.6
South Africa	13.4	15.2	16.8	16.4
Turkey	13.0	13.4	12.4	11.5
Argentina	2.5	2.7	3.0	3.0
Lesotho	1.3	1.3	1.3	1.1
Total	39.0	42.5	43.5	42.6

1/ Estimated.

has been rising in recent years. Poor climate and grazing conditions have limited output in Lesotho.

The major producers--South Africa, the United States, and Turkey--are also the major exporters of raw mohair. 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 raw production is exported.

The United States accounts for about a quarter of the exports of the major traders (table 14). U.S. exports in 1983 soared to the highest level since 1972 because of reduced production in South Africa and a likely drop in its exports.

Virtually all of U.S. 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.

Future growth in U.S. mohair output will depend on the export market which is in developed countries. Their economic growth will improve in the 1980's and could help U.S. exports. However, mohair's high and volatile price will tend to keep it a specialty fiber for only high-priced, better-quality applications. Continued competition from other natural fibers, manmade fibers, and South African and Turkish mohair will likely prevent U.S. mohair exports from gaining significantly, thus limiting incentives for increasing U.S. goat numbers.

Prices

From the 1950's through 1971, average market prices of mohair trended down, reflecting rising mohair supplies. The highest price during the period was 96 cents a pound in 1959 and the lowest was 30 cents in 1971. The year-to-year changes closely paralleled changes in wool prices. However, mohair prices were more variable, ranging from being about equal to wool to more than double its price. There was a fairly close relationship between the prices because they were often substitutes in textile production.

During the 1970's, the correlation between mohair and wool prices diminished (fig. 3). From 1973 to 1983, mohair prices averaged 4.3 times wool prices, considerably greater than the ratio prior to 1973. With 90 percent of U.S.

Table 14--World mohair exports

Country	1980	1981	1982	1983 1/
		Million pounds, greasy		
United States	6.2	7.1	7.7	9.7
South Africa 2/	10.9	15.1	20.7	---
Turkey	2.3	6.3	8.1	10.2
Total	19.4	28.5	36.5	---

--- = Not available.
1/ Estimated. 2/ Includes Lesotho.

production exported, swings in foreign production and demand cause a continued pattern of instability. A growing preference for mohair in Europe and Japan since the mid-1970's has accounted for the rising prices and generally increasing world use. The growing demand has reduced the ability of other fibers to substitute for mohair. Thus, prices in the mohair market have become more independent of prices in other fiber markets.

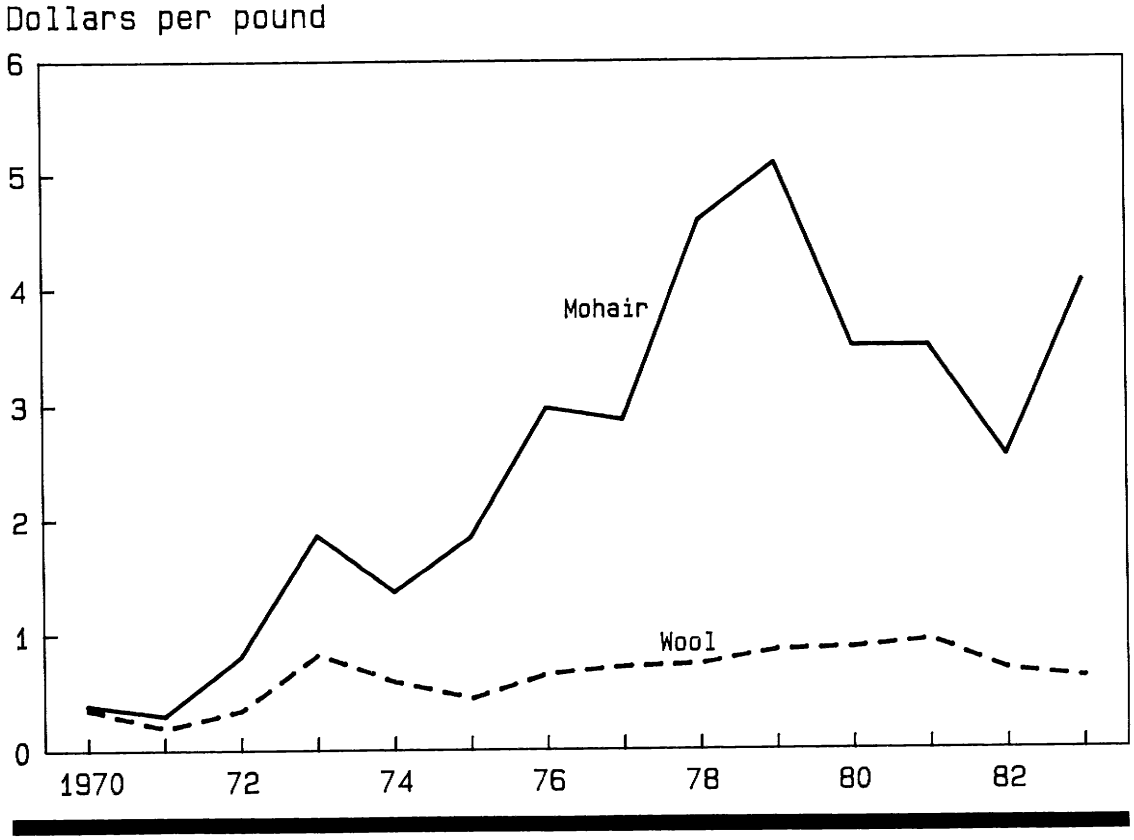
Mohair prices improved substantially during 1983. Strong export demand boosted the average producer price to $4.05 a pound, a 60-percent gain. Carryover stocks fell to an unusually low 150,000 pounds on December 31, 1983, but the average price was still 58 cents a pound short of the Government price support level, the basis for Government income-support payments made to mohair producers.

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 1981. Most significant was the National Wool Act of 1954, which created the wool and mohair program provisions that are essentially in effect today.

Figure 3.

Average Price Received by Producers for Mohair and Wool, 1970-1983



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 by 1950. Thus, the legislated production goal required support to be set at the maximum 90 percent of parity. But even at that level, the goal exceeded what was produced.

The 1954 Act and Incentive 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, they have 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 between 60 and 90 percent of parity if only 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. Unshorn (pulled) wool and mohair were to be supported at related 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, or incentive, 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 wool stocks to over 50 percent of a year's production by the time the 1954 Act was implemented. The change to supporting prices with payments, rather than loans and purchases, allowed market prices to fall below the support price. The incentive price remained at 62 cents a pound through 1965, well above the market price during the period. The incentive price and the direct payment were forerunners of the target price and deficiency payment concepts implemented for grains and cotton in the 1970's.

Table 15--Wool and mohair: Marketing year prices and Government payments 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 lb.		Mil. dol.	Cents per lb.		Mil. dol.
1955	62	42.8	57.6	70.0	82.2	---
1956	62	44.3	51.9	70.0	84.4	---
1957	62	53.7	16.1	70.0	83.7	---
1958	62	36.4	85.1	70.0	72.3	---
1959	62	43.3	53.9	70.0	96.4	---
1960	62	42.0	59.5	70.0	89.7	---
1961	62	42.9	56.9	73.0	85.6	---
1962	62	47.7	39.2	74.0	71.4	0.8
1963	62	48.5	27.2	76.0	88.1	---
1964	62	53.2	20.3	72.0	94.3	---
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	---
1973	72	82.7	---	80.2	187.0	---
1974	72	59.1	14.5	80.2	137.0	---
1975	72	44.7	40.9	80.2	185.0	---
1976	72	65.7	7.0	80.2	298.0	---
1977	99	72.0	28.9	149.8	287.0	---
1978	108	74.5	36.1	164.7	459.0	---
1979	115	86.3	30.8	194.3	510.0	---
1980	123	88.1	37.5	290.3	350.0	---
1981	135	94.5	47.0	371.8	350.0	1.8
1982	137	68.4	71.9	397.7	255.0	16.8
1983 2/	153	61.3	116.2	462.7	405.0	6.4

--- = 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 for 1955-56 and 1964-83; April-May marketing years for 1957-62; and April-December for 1963. Government payment includes deduction for promotion. 2/ Estimated.

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--called the incentive payment--is supposed to encourage the production of higher quality (higher value) wool and improve wool 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 1955 support price for shorn wool was 44.9 percent above the average market price. So, each producer received a payment equal to 0.449 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 incentive payment.

Changes in the Incentive Price

The major legislative changes in the wool and mohair program since 1955 have centered on the method used to compute the incentive price on which the incentive payment is based. From 1955 through 1965, the incentive price was set by the Secretary of Agriculture at 62 cents a pound for shorn wool.

The Food and Agriculture Act of 1965 introduced a formula for determining the incentive 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 three most recent years, compared with that index during three base years, 1958, 1959, and 1960. There is 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 incentive price during the late 1960's, and by 1972, it was 72 cents a pound.

With the gap widening each year between the growing incentive price and the lower market price, the Agricultural Act of 1970 abandoned the formula and fixed the incentive 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 incentive 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 incentive price on 77.5 percent of the amount indicated by the formula.

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 contributions 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." Further, the General Accounting Office in a report to Congress (GAO/CED-82-86, August 2, 1982) found no evidence that the program has improved wool quality, and that it is not justified on the basis of national security.

A major concern is the escalation of wool support prices. For 1983, the support price of $1.53 per pound of shorn wool was 2-1/2 times the average producer price of 61 cents. Government payments (including the deductions for the wool

promotion program) are estimated at a record $116 million. The 1984 support level is $1.65 a pound.

The mohair program has had substantial periods during which no Government payments were made. After 9 years of no payments, $1.8 million (including deductions for promotion) was paid out in 1981, followed by a record $16.8 million in 1982. Mohair prices recovered during 1983, but payments still are estimated at $6.4 million. The 1984 support level was raised 12 percent to $5.169 a pound.

Another concern is whether to continue the payment for unshorn lambs. The National Wool Act requires the Secretary to set the payment rate for unshorn lambs so as to "maintain normal marketing practices for pulled wool." The GAO concluded that such payments are not necessary to maintain normal 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 would probably cause 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 shorn wool payments would offset declining unshorn lamb payments. The unshorn lamb payment rate is based on 5 pounds of wool per 100 pounds of unshorn lambs marketed, the difference between the average price for shorn wool and the support price, and the value of lambs wool relative to the price of shorn wool (estimated at 80 percent). The payment rate for 1983 was $3.67 per cwt of unshorn lambs sold or slaughtered. The total unshorn lamb payment is estimated at $17 million, or 15 percent of total wool program payments. In 1981, unshorn lamb payments were 14 percent of total payments, and in 1982, 17 percent.

Wool program payments are not subject to a payment limit. The combined payments for wheat, feed grains, upland cotton, and rice are limited to $50,000 per person, per year, for all payments except disaster payments, loans, and purchases. If wool payments are continued, an issue for future legislation is whether the payments should be subject to a limit, such as that for crops.

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 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 incentive 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 to 3 percent (table 16). Thus, large changes in the expected wool price are required to elicit modest changes in wool output.

When market prices are below the incentive price, wool producers expect to receive a price about equal to the incentive price. Consequently, production would exceed the level under no price support program. For most commodities, this extra output lowers market prices and benefits consumers. They can buy more at a lower price.

However, it is likely that market prices for wool would be similar with or without the incentive payment 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 incentive payment rate. The 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 incentive payment rate.

Producer Benefits and Production Effects: 1977-83

The wool price support level began a sharp escalation in 1977. Average levels of market variables during 1977-83 can be used to demonstrate the economic effects of the wool program. The average incentive payment rate was 48.2 cents a pound, compared with the average market price of 77.9 cents. World wool prices and the responsiveness of U.S. wool demand to price changes could be expected to have kept average prices near 78 cents a pound in the absence of the program. Thus, the 48-cent average wool payment during 1977-83 raised producer returns by 62 percent. This would likely have boosted wool production by 18 percent. This production change is derived using a typical result of statistical analysis--a 10-percent rise in per pound producer receipts for wool

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

Year	Wool	Sheep and lambs	Incentive payments	Total	Share of total: Wool value	Share of total: Payments	Share of total: 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	26.6	34.8
1972	55.5	271.4	68.0	394.9	14.1	17.2	31.3
1973	118.8	293.7	---	412.5	28.8	---	28.8
1974	77.8	272.0	14.5	364.2	21.4	4.0	25.3
1975	53.5	303.3	40.9	397.7	13.5	10.3	23.7
1976	73.5	315.6	7.0	396.1	18.6	17.7	20.3
1977	77.3	320.3	28.9	426.5	18.1	6.8	24.9
1978	76.7	381.6	36.1	494.4	15.5	7.3	22.8
1979	90.5	410.1	30.8	531.4	17.0	5.8	22.8
1980	92.8	401.5	37.5	531.8	17.5	7.1	24.5
1981	103.6	358.5	47.0	509.1	20.3	9.2	29.6
1982	72.3	355.2	71.9	499.4	14.5	14.4	28.9
1983 1/	61.5	351.9	116.2	529.6	11.6	21.9	33.6

--- = No payment.
1/ Payments are estimated.

has been associated with a 3-percent rise in wool output. Production averaged 106 million pounds, greasy, during 1977-83. Thus, production under no program would have averaged an estimated 90 million pounds a year.

Program benefits to producers are the incentive payment rate, 48 cents a pound, times the 90 million pounds that would be produced with or without a program, or $43 million. Additional benefits come from the returns above production costs on the extra 16 million pounds of wool produced in response to the incentive payment. The production/price relationship used above can be used to derive this benefit, about $4 million.

Producer benefits total a yearly average of $47 million ($43 million plus $4 million, or an average of $670 per recipient of wool program payments), slightly less than the average Government payments of $51 million made during 1977-83. The difference--$4 million--is the resource cost of producing the extra 16 million pounds above what it would have cost to purchase imported wool. This $4 million is the average social cost (net welfare loss) of the wool program during 1977-83, and it excludes the administration costs of the program.

The $51 million in payments divided by the additional output of 16 million pounds is $3.19 a pound--the average cost per pound to the taxpayer to raise wool production during 1977-83. The GAO, using a similar analysis, estimated that each additional pound of wool produced in response to the program cost the Government between $2.63 and $6.01 a pound in 1980, compared with the average market price of 88 cents. The cost range resulted from using different estimated production/price relationships.

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 incentive payment rate--declined from the inception of the current wool program through 1976 (table 17 and appendix tables 7 and 8). The return to the formula in 1977 for setting the incentive price level halted the decline. Real market prices continued to drop, but the rising real incentive payment rate bolstered farm income. The wool program has also marginally raised the balance of trade (as computed above, wool imports were 16 million pounds lower per year during 1977-83). The program has not likely improved resource allocation, because production costs of the increased wool output have exceeded what consumers would be willing to pay for it.

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 have risen since the late 1960's (appendix 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 caused by 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 program benefits. In 1978, 58 percent of the 98,000 operations owning sheep and lambs were full owners; 31 percent were part owners; and 11 percent were tenants. Of the 28,000 operations owning goats, 70 percent were full owners; 21 percent, part owners; and 9 percent, tenants.

Because incentive payments are based on sales volume, large operations receive greater payments than small operations. Table 18 shows that most incentive payments for shorn wool go to a very small number of producers. The average payment per recipient for shorn wool was about $840 in 1982. However the large producers, those receiving 72 percent of the payments, received an average payment of about $13,220. In addition to the 70,300 producers receiving shorn wool payments in 1982, 50,900 received payments on unshorn lambs. The distribution of those payments--$12.4 million--was similar to that for shorn

Table 17--Nominal and deflated wool prices and payments

Year	Market price		Average incentive payment 1/		Total	
	Nominal	Real 2/	Nominal	Real 2/	Nominal	Real 2/
	Cents per pound					
1955	42.8	70.3	20.4	33.5	63.2	103.9
1960	42.0	61.1	19.9	29.0	61.9	90.1
1965	47.1	63.3	15.2	20.4	62.3	83.8
1970	35.5	38.8	36.2	39.6	71.7	78.4
1975	44.7	35.6	32.6	26.0	77.3	61.6
1976	65.7	49.6	6.0	4.5	71.4	54.0
1977	72.0	51.4	26.3	18.8	98.3	70.2
1978	74.5	49.5	34.7	23.1	109.2	72.6
1979	86.3	52.8	29.1	17.8	115.4	70.6
1980	88.1	49.4	35.3	19.8	123.4	69.2
1981	94.5	48.4	42.5	21.8	137.0	70.1
1982	68.4	33.1	67.5	32.6	135.9	65.7
1983 3/	61.3	28.4	114.7	53.1	176.0	81.5

1/ Payment per pound produced, not per pound marketed. 2/ Deflated using gross national product deflator, 1972=1.0. 3/ Payments are estimated.

Table 18--Shorn wool producers and incentive payments, 1982

Payment	Payees		Payment	
	Number	Share	Amount	Share
	Thous.	Pct.	Mil. dol.	Pct.
Less than $100	35.6	50	1.62	3
$100-$999	27.7	39	8.29	14
$1,000-$2,999	3.9	6	6.61	11
$3,000 and greater	3.2	5	42.30	72
Total	70.3	100	58.83	100

wool: 36 percent of the payments went to only about 600 producers (those receiving $3,000 or more). Only 10 percent of the payments went to the 65 percent of the producers who received less than $100 each.

Mohair payments also show a pattern similar to shorn wool, although more pronounced for Texas than for the United States (table 19). The average U.S. payment per recipient was around $2,000 in 1982. However, recipients accounting for 77 percent of the payments had an average payment of nearly $17,000. The number of payees differs from the Census of Agriculture number of producers because some payments are made to operators who may be too small to be counted in the Census. There are also differences in how the Census defines an operator and how payees are defined by the Agricultural Stabilization and Conservation Service.

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 incentive payments. The additional U.S. wool production caused by the incentive 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, to the extent that the higher output causes a short-term drop in U.S. wool prices, consumers benefit.

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 5 percent of the 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 incentive price has exceeded market price, causing greater mohair production than if there were

Table 19--Mohair producers and incentive payments, 1982

Payment	Payees		Payment	
	Number	Share	Amount	Share
		Pct.	Mil. dol.	Pct.
Texas:				
Less than $5,000	1,831	71	3.29	21
$5,000 and greater	744	29	12.66	79
Total	2,575	100	15.95	100
United States:				
Less than $5,000	7,248	91	3.73	23
$5,000 and greater	753	9	12.76	77
Total	8,001	100	16.49	100

no price support program. The higher output has lowered U.S. mohair prices, enabling U.S. consumers to buy more at lower prices.

Unlike other commodities, the wool and mohair price support program does 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 $120 may contain only 4 pounds of raw wool, greasy, with farm value of about $3. A mohair sweater selling for $150 may contain only a pound of raw mohair, greasy, having a farm value of $4.00. Because they account for so little of final product value, changes in raw fiber prices are indiscernable 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 1982, the average tariff on woven wool fabrics imported by the United States was 38 percent of the value of the imports (foreign port value, not loaded on ships). This compares with an average tariff of 22 percent for woven fabrics made from manmade fibers and 12 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 $241 million in 1982 and $270 million in 1983.

Effects on Taxpayers

Taxpayers bear the cost of Government expenditures on the wool and mohair program. (Table 15 shows incentive payments for calendar year production. A more complete accounting of program costs by fiscal year is in appendix 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.

Incentive 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 106.5 cents a pound for wool in 1983 (table 20). 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 were still well below payments in the late 1960's and early 1970's.

Total wool and mohair program costs to taxpayers were $93.5 million during fiscal 1983. Total net expenditures of the Commodity Credit Corporation for price support and related activities for all commodities were $18.9 billion. Thus, the wool and mohair program accounted for about one-half of 1 percent of public expenditures on price support and related programs during 1983.

Annual U.S. wool production is equivalent to only about one-tenth of 1 percent of the value of principal crops produced in the United States, and sheep marketings are about the same fraction of the value of total livestock marketings. The value of mohair produced is but a third of wool's value. However, the significance of these fibers is substantial in production areas, particularly in parts of Texas and the Rocky Mountain States where crops would fare poorly or cannot be grown.

The Agriculture and Food Act of 1981 authorized the wool and mohair program through 1985. The recent performance of the wool market and experience with the 1981 Act have raised issues to consider when assessing policies for the future.

- Should there be a wool and mohair program at all?
- If so, how should incentive price levels be determined? Should the formula based on prices paid by farmers be retained, or should incentive prices reflect market imbalances? Should an adjustment be made for productivity growth?
- Should price support payments continue to be made for unshorn lambs (lambs sold to a feedlot for fattening and slaughtering)?
- Have wool and mohair program costs, due to escalation of price support levels, exceeded acceptable limits?
- What is the economic status of wool and mohair producers?

Table 20--Wool incentive payments per pound produced and per taxpayer

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	20.4	45.9	61.7
1966	12.0	15.6	34.6	45.1
1967	27.3	34.5	74.6	94.4
1968	27.5	33.3	69.1	83.7
1969	27.7	31.9	62.7	72.2
1970	36.2	39.6	77.4	84.6
1971	59.4	61.9	121.6	126.7
1972	40.4	40.4	78.6	78.6
1973	---	---	---	---
1974	10.6	9.2	15.9	13.8
1975	32.6	26.0	44.2	35.2
1976	6.0	4.5	7.4	5.6
1977	26.3	18.8	29.7	21.2
1978	34.7	23.1	36.0	24.0
1979	29.1	17.8	29.9	18.2
1980	35.3	19.8	35.8	20.1
1981	42.5	21.8	46.8	24.0
1982	67.5	32.6	72.3	35.0
1983	106.5	49.3	106.9	49.5

--- = 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, 1972=1.0.

Many of these questions involve judgments that can best be made through an understanding of trends in the U.S. wool and mohair industries.

- Wool has been a declining industry since World War II. Sheep inventories fell from a record 56 million in 1942 to 11.4 million in 1984. Adoption of manmade fibers accelerated the decline.
  Wool accounts for only 2 percent of final consumption of total fibers, compared with 10 percent three decades ago.
- Mohair has also been in decline. There are 1.2 million Angora goats now, a fourth as many as 20 years ago.
- Imports of wool--both raw and in the form of textiles--have made sharp inroads, primarily due to the dollar's appreciation, lower tariffs on raw wool, and ample foreign wool supplies. Of the nine-tenths of a pound of wool textiles used per person in the United States during 1983, about four-fifths were imported or made from imported raw wool.
- U.S. consumer taste for lamb and mutton is slight, only 1.5 pounds per person in 1983 out of total meat consumption of 210 pounds. Yet, meat accounted for nearly 70 percent of a sheep producer's receipts in 1983. Wool program payments serve as supplementary income.

Policymakers have limited control over current wool program costs, given the formula-based support price and the trends of declining textile market share, stagnant lamb and mutton consumption, growth in wool imports, and the dominance of Australia and New Zealand in the world wool market.

Foreign market developments are also critical for mohair, because 90 percent of U.S. output is exported. Recent program payments have moderated the impact of highly volatile prices which depend mainly on the U.S. and South African clips and changes in demand due to changes in overall economic activity.

Wool producer prices have been below the incentive price since 1973, and mohair prices have been below support since 1981. Prices in both markets fell during 1982 as global textile demand weakened in the face of adequate supplies. Mohair program payments were the highest on record and wool payments the highest since 1971. Wool prices fell again in 1983, despite a recovery in textile demand, and raw wool imports were the highest in 11 years. Government wool payments are estimated at a record $116 million. The mohair market recovered in 1983 as exports rose substantially, reflecting a reduced South African clip. Stocks were driven to an unprecedented low, yet incentive payments were still made.

The prospects are for continued large imports of wool and wool textiles and, at best, slowly growing sheep numbers. Mohair production also has limited expansion potential. Both wool and mohair will continue to face formidable competition from manmade fiber technological developments and from increased manmade fiber production and use in textile exporting countries.

The history of the wool and mohair program has been one of dealing with wool prices that are consistently below support levels causing sustained Government payments; mohair payments have been far less frequent and smaller. Support functions purely as an income supplement to producers; legislation has not permitted production cutbacks in return for support payments. Legislation has set support levels for wool consistently above world prices and attempted unsuccessfully to revitalize the declining wool industry. The outcome has been predictable--rising imports and Government payments.

The wool and mohair program has raised wool and mohair production and farm income, compared with levels under no program. The output increase has been small, because wool production is relatively unresponsive to changes in producer prices. Most Government expenditures on wool have benefited producers rather than consumers. The program has probably affected wool market prices only slightly because the production increase has been relatively small, and because world wool prices are an important determinant of U.S. prices. The production increase has probably caused a reduction of about the same size in raw wool imports.

Consumers are adversely affected by the tariff on imported wool textiles but are affected little by the wool support program. The value of raw wool is often less than 5 percent of the value of its final processed product. Imports from many countries and for many wool apparel items and fabrics are subject to tariff rates in excess of 30 percent of value. The tariffs on wool textiles and on raw wool boost U.S. consumer prices of wool products and raise producer prices of raw wool.

Government expenditures on wool and mohair are taxpayer costs. These expenditures have risen during the last several years. Wool expenditures per taxpayer, when adjusted for inflation, are also up but are less than during the late 1960's and early 1970's. During fiscal year 1983, Government outlays on all price support and related programs totaled an estimated $18.9 billion. Wool and mohair outlays are estimated at $93.5 million.

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Appendix table 1--Number of sheep and wool yield and production

Year	Number of sheep shorn	Yield per fleece	Production--greasy			Production--clean		
			Shorn	Pulled 1/	Total	Shorn	Pulled 1/	Total
	Thous.	Lbs., greasy	Thous. lbs.					
1950	26,380	8.22	216,944	32,400	249,344	103,482	23,620	127,102
1951	27,347	8.34	228,091	25,900	253,991	108,799	18,881	127,680
1952	28,051	8.32	233,309	33,600	266,909	111,288	24,494	135,782
1953	27,845	8.34	232,258	42,200	274,458	110,787	30,764	141,551
1954	27,692	8.52	235,807	43,500	279,307	112,480	31,712	144,192
1955	28,149	8.57	241,284	41,600	282,884	115,092	30,326	145,418
1956	28,469	8.51	242,177	40,500	282,677	115,518	29,525	145,043
1957	28,415	8.41	239,101	33,600	272,701	114,051	24,494	138,413
1958	29,403	8.29	243,713	30,400	274,113	116,251	22,162	138,413
1959	30,763	8.45	259,939	34,500	294,439	123,991	25,151	149,142
1960	31,081	8.54	265,277	33,600	298,877	126,537	24,494	151,031
1961	30,454	8.51	259,161	34,500	293,661	123,620	25,151	148,771
1962	29,193	8.45	246,636	29,900	276,536	117,645	21,797	139,442
1963	27,264	8.53	232,446	28,800	261,246	110,877	20,995	131,872
1964	25,455	8.34	212,333	25,100	237.433	101,283	18,298	119,581
1965	23,756	8.48	201,463	23,300	224,763	96,098	16,986	113,084
1966	22,923	8.51	195,053	24,100	219,153	93,040	17,569	110,609
1967	22,056	8.57	188,984	22,400	211,384	90,145	16,330	106,475
1968	20,759	8.55	177,396	20,500	197,896	84,618	14,945	99,563
1969	19,584	8.46	165,749	17,100	182,849	79,062	12,466	91,528
1970	19,163	8.43	161,587	15,200	176,787	77,077	11,081	88,158
1971	19,036	8.41	160,156	12,000	172,156	76,394	8,748	85,142
1972	18,770	8.44	158,506	9,700	168,206	83,691	7,071	90,762
1973	17,425	8.25	143,738	8,000	151,738	75,894	5,832	81,726
1974	15,956	8.23	131,382	5,700	137,082	69,370	4,155	73,525
1975	14,403	8.30	119,535	6,000	125,535	63,114	4,374	67,488
1976	13,536	8.21	111,100	4,850	115,950	58,661	3,536	62,197
1977	13,217	8.12	107,328	2,450	109,778	56,669	1,786	58,455
1978	12,719	8.09	102,942	1,000	103,942	54,353	729	55,082
1979	13,068	8.02	104,860	900	105,760	55,366	656	56,022
1980	13,255	7.95	105,367	1,050	106,417	55,634	765	56,399
1981	13,477	8.14	109,689	1,150	110,839	57,916	838	58,754
1982	13,152	8.03	105,596	1,000	106,596	55,755	729	56,484
1983	12,640	7.93	100,265	1,000	101,265	52,940	729	53,669

1/ Pulled wool production not reported after 1981. Data for 1982 and 1983 are estimates.

Appendix table 2--Number of Angora goats and mohair yield and production, Texas

Year	Number of Angora goats clipped	Yield per goat clipped	Mohair production	
			Greasy	Clean
	Thous.	Lbs., greasy	Thous. lbs.	
1950	2,350	5.4	12,643	10,114
1951	2,294	5.4	12,280	9,824
1952	2,125	5.5	11,670	9,336
1953	2,167	5.6	12,160	9,728
1954	2,458	5.7	13,997	11,198
1955	2,831	5.8	16,401	13,121
1956	2,990	5.9	17,616	14,093
1957	3,062	6.0	18,432	14,746
1958	3,247	6.2	20,207	16,166
1959	3,586	6.6	23,512	18,810
1960	3,711	6.4	23,750	19,000
1961	3,841	6.7	25,690	20,552
1962	4,049	6.5	26,418	21,134
1963	4,164	6.8	28,153	22,810
1964	4,363	6.6	28,872	23,098
1965	4,612	6.8	31,584	25,267
1966	4,477	6.4	28,770	23,016
1967	3,928	6.7	26,335	21,068
1968	3,784	6.7	25,272	20,218
1969	3,000	6.7	20,100	16,080
1970	2,725	6.6	17,985	14,388
1971	2,189	6.8	14,885	11,908
1972	1,521	6.7	10,190	8,152
1973	1,450	6.8	9,930	7,944
1974	1,175	7.1	8,400	6,720
1975	1,215	7.1	8,600	6,880
1976	1,100	7.4	8,100	6,480
1977	1,215	6.5	8,000	6,400
1978	1,188	6.8	8,100	6,480
1979	1,275	7.3	9,300	7,440
1980	1,240	7.1	8,800	7,040
1981	1,300	7.6	9,900	7,920
1982	1,330	7.5	10,000	7,600
1983	1,360	7.8	10,600	8,056

Appendix table 3--Imports, use, and ending stocks for wool

Year	Imports	Use			Ending stocks 1/	Stocks to use
		Mill	Exports	Total		
	Million pounds, clean					Percent
1950	446.8	634.8	6.7	641.5	175.2	27.3
1951	361.2	484.2	.2	484.4	173.5	35.8
1952	367.1	466.4	.1	466.4	205.0	44.0
1953	294.3	494.0	1.4	495.4	226.5	45.7
1954	206.0	384.1	1.2	385.3	242.7	63.0
1955	248.8	413.8	.3	414.1	249.5	60.3
1956	246.9	440.8	.3	441.1	186.1	42.2
1957	199.2	368.8	2.5	371.3	151.9	40.9
1958	189.7	331.1	5.2	336.3	125.5	37.3
1959	292.2	453.3	.1	453.4	151.4	33.4
1960	228.2	411.0	.3	411.3	132.0	32.1
1961	247.6	412.1	.3	412.4	131.8	32.0
1962	269.3	429.1	.1	429.2	118.3	27.6
1963	277.2	411.7	.2	411.9	113.8	27.6
1964	212.3	356.7	.1	356.8	103.3	29.0
1965	271.6	387.0	.6	387.6	118.9	30.7
1966	277.1	370.2	.1	370.3	117.8	31.8
1967	187.3	312.5	.1	312.6	104.5	33.4
1968	249.3	329.7	.5	330.2	117.3	35.5
1969	189.3	312.8	.2	313.0	96.4	30.8
1970	153.1	240.3	.2	240.5	79.3	33.0
1971	126.6	191.0	6.3	197.3	86.0	43.6
1972	96.6	218.6	11.2	229.8	71.2	31.0
1973	60.1	151.3	3.7	155.0	53.3	34.4
1974	26.9	93.5	4.3	97.8	51.5	52.7
1975	33.6	110.0	7.7	117.7	47.5	40.4
1976	57.5	121.7	1.1	122.8	41.6	33.9
1977	53.0	108.0	.4	108.4	42.0	38.7
1978	50.4	115.3	.4	115.7	48.5	41.9
1979	42.3	117.0	.3	117.3	46.8	39.9
1980	56.5	123.4	.3	123.4	50.6	41.0
1981	74.2	138.6	.3	138.9	44.6	32.1
1982	61.4	115.7	1.4	117.1	46.0	39.3
1983	78.1	138.1	1.0	139.1	42.0	30.2

1/ December 31, except for the following: 1950, stocks are as of April 1, 1951; 1951, December 29, 1951; 1952, December 27, 1952; and 1953-56, April 1, 1954-57.

Appendix table 4--Use and ending stocks for mohair

Year	Domestic use 1/	Exports	Total use	Ending stocks	Stocks to use
	Thousand pounds, clean				Percent
1950	16,252	90	16,342	3,080	18.8
1951	10,876	33	10,909	4,225	38.7
1952	10,778	24	10,802	4,192	38.8
1953	9,385	883	10,268	5,150	50.2
1954	7,116	2,536	9,652	6,784	70.2
1955	6,807	6,053	12,860	7,058	54.9
1956	4,368	11,835	16,203	4,951	30.6
1957	4,004	9,992	13,996	5,701	40.7
1958	3,851	13,210	17,061	4,806	28.2
1959	2,963	18,561	21,524	2,098	9.7
1960	3,512	13,511	17,023	4,104	24.1
1961	4,962	13,523	18,485	6,171	33.4
1962	8,017	12,540	20,557	6,789	33.0
1963	11,236	14,200	25,436	4,167	16.4
1964	17,006	2,657	19,663	7,663	39.0
1965	16,375	7,690	24,065	8,869	36.9
1966	6,913	9,953	16,866	15,029	89.1
1967	10,642	10,098	20,740	15,357	74.0
1968	8,151	15,005	23,156	12,430	53.7
1969	10,877	7,129	18,006	10,506	58.3
1970	3,151	10,571	13,722	11,174	81.4
1971	283	12,199	12,482	10,600	84.9
1972	-6,587	18,846	12,259	6,493	53.0
1973	2,735	9,324	12,059	2,378	19.7
1974	-2,241	7,421	5,180	3,909	75.5
1975	1,088	8,828	9,916	892	9.0
1976	-1,372	7,161	5,789	1,620	28.0
1977	743	6,190	6,933	1,147	16.5
1978	171	6,557	6,728	905	13.5
1979	182	6,452	6,634	1,719	25.9
1980	700	6,221	6,921	1,883	27.2
1981	612	7,124	7,736	2,293	29.6
1982	752	7,743	8,495	1,422	16.7
1983	-278	9,653	9,375	148	1.6

1/ Computed as beginning stocks, production, and imports less exports and ending stocks. Negative indicates errors in data or unaccounted-for supplies.

Appendix table 5--Raw wool and wool textile imports

Year	Raw wool			Raw wool equivalent of imported textiles
	Duty-free	Dutiable	Total	
	Million pounds, clean			
1950	216.7	250.1	466.8	63.8
1951	89.2	272.0	361.2	56.4
1952	118.6	248.5	367.1	88.0
1953	128.6	165.7	294.3	62.0
1954	102.1	103.9	206.0	61.1
1955	136.0	112.8	248.8	81.4
1956	143.1	103.8	246.9	91.1
1957	121.0	78.2	119.2	85.2
1958	122.6	67.1	189.7	90.2
1959	191.7	100.5	292.2	126.9
1960	153.9	74.3	228.2	132.1
1961	157.3	90.3	247.6	127.5
1962	143.5	125.8	269.3	145.6
1963	168.0	109.2	277.2	152.5
1964	113.9	98.4	212.3	141.1
1965	109.0	162.6	271.6	156.7
1966	114.6	162.5	277.1	144.3
1967	78.2	109.1	187.3	123.4
1968	119.6	129.7	249.3	146.0
1969	95.7	93.5	189.2	129.7
1970	73.3	79.8	153.1	116.6
1971	83.9	42.7	126.6	89.7
1972	71.8	24.8	96.6	95.4
1973	40.5	19.6	60.1	90.0
1974	15.1	11.8	26.9	74.2
1975	17.0	16.6	33.6	68.4
1976	19.1	38.4	57.5	98.6
1977	18.8	34.2	53.0	116.6
1978	23.4	27.0	50.4	129.4
1979	22.0	20.3	42.3	109.5
1980	26.0	30.5	56.5	103.3
1981	26.1	48.1	74.2	113.6
1982	21.4	40.0	61.4	112.2
1983	28.7	49.4	78.1	149.8

Appendix table 6--Farm-related program costs for wool and mohair

Fiscal year	Incentive payments: Shorn wool	Incentive payments: Unshorn lambs	Incentive payments: Mohair	Net price support and related expenditures 1/
		Million dollars		
1961	45.4	8.5	---	60.9
1962	49.9	9.6	---	65.3
1963	47.8	9.1	---	63.2
1964	55.0	11.5	0.8	73.2
1965	16.6	3.6	---	22.6
1966	28.1	6.1	2.0	38.2
1967	21.1	5.1	6.4	35.1
1968	48.0	9.9	11.5	72.5
1969	44.8	9.6	10.7	67.9
1970	41.6	9.1	1.9	56.3
1971	52.0	12.0	7.9	75.4
1972	85.6	17.2	10.0	116.6
1973	56.2	11.8	---	74.0
1974	.1	---	---	7.8
1975	12.2	2.5	---	18.9
1976 2/	35.9	5.9	---	47.3
1977	5.6	1.2	---	10.4
1978	24.4	4.4	---	33.0
1979	30.7	5.4	---	39.4
1980	26.5	4.5	---	34.5
1981	32.1	5.5	---	42.1
1982	40.7	6.3	1.8	53.9
1983 3/	59.1	12.4	16.7	93.5

--- = No payments.

1/ Payments for shorn wool, unshorn lambs, and mohair plus administrative and interest expenses and adjustments.

2/ Includes July-Sept. 1976 to allow for shift from July-June to Oct.-Sept. fiscal year.

3/ Estimated.

Appendix table 7--Wool and mohair: Prices and Government payments 1/

Year	Wool			Mohair		
	Support price	Average market price received by producers	Average direct payment	Support price	Average market price received by producers	Average direct payment
	Cents per pound, greasy					
1950	45.2	62.1	---	49.1	76.0	---
1951	50.7	97.1	---	53.4	118.0	---
1952	54.2	54.1	---	57.2	96.3	---
1953	53.1	54.9	---	60.7	87.7	---
1954	53.2	53.2	---	64.3	72.4	---
1955	62.0	42.8	20.4	70.0	82.2	---
1956	62.0	44.3	18.4	70.0	84.4	---
1957	62.0	53.7	5.9	70.0	83.7	---
1958	62.0	36.4	31.0	70.0	72.3	---
1959	62.0	43.3	18.3	70.0	96.4	---
1960	62.0	42.0	19.9	70.0	89.7	---
1961	62.0	42.9	19.4	73.0	85.6	---
1962	62.0	47.7	14.2	74.0	71.4	3.8
1963	62.0	48.5	10.4	76.0	88.1	---
1964	62.0	53.2	8.5	72.0	94.3	---
1965	62.0	47.1	15.2	72.0	65.5	7.9
1966	65.0	52.1	12.0	75.8	53.7	28.2
1967	66.0	39.8	27.3	76.4	40.9	54.6
1968	67.0	40.5	27.5	77.4	45.2	52.4
1969	69.0	41.8	27.7	77.4	65.1	12.4
1970	72.0	35.5	36.2	80.2	39.1	54.2
1971	72.0	19.4	59.4	80.2	30.1	84.0
1972	72.0	35.0	40.4	80.2	81.4	---
1973	72.0	82.7	---	80.2	187.0	---
1974	72.0	59.1	10.6	80.2	137.0	---
1975	72.0	44.7	32.6	80.2	185.0	---
1976	72.0	65.7	6.0	80.2	298.0	---
1977	99.0	72.0	26.3	149.8	287.0	---
1978	108.0	74.5	34.7	164.7	459.0	---
1979	115.0	86.3	29.1	194.3	510.0	---
1980	123.0	88.1	35.3	290.3	350.0	---
1981	135.0	94.5	42.5	371.8	350.0	22.7
1982	137.0	68.4	67.5	397.7	255.0	221.1
1983	153.0	61.3	114.7	462.7	405.0	79.4
1984	165.0	NA	NA	516.9	NA	NA

NA = Not available.
--- = No payment.

1/ Support prices are average loan rates for 1950-54. Support was carried out through loans or purchases, rather than direct payments. 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 for 1955-56 and 1964-83; April-May marketing years for 1957-62; and April-December for 1963. Payment rate is computed as total payments divided by U.S. wool production and Texas mohair production.

Appendix table 8--Value comparisons for wool

Year	Market value per sheep shorn		Gross value of production 1/	
	Nominal	Real 2/	Nominal	Real 2/
	Dollars		Million dollars	
1950	5.10	9.52	134.6	251.3
1951	8.10	14.19	221.5	388.0
1952	4.50	7.77	126.3	218.1
1953	4.58	7.79	127.5	216.8
1954	4.53	7.61	125.5	210.7
1955	3.66	6.02	103.0	169.3
1956	3.77	6.00	107.2	170.7
1957	4.50	6.93	127.8	196.8
1958	3.01	4.56	88.6	134.2
1959	3.65	5.40	112.3	166.1
1960	3.58	5.21	111.4	162.2
1961	3.66	5.28	111.4	160.7
1962	4.03	5.71	117.6	166.5
1963	4.12	5.75	112.4	156.8
1964	4.43	6.09	112.9	155.1
1965	4.00	5.38	95.0	127.8
1966	4.41	5.75	101.2	131.8
1967	3.41	4.31	75.2	95.1
1968	3.46	4.19	71.8	87.0
1969	3.55	4.09	69.5	80.1
1970	2.98	3.26	57.2	62.5
1971	1.65	1.72	31.4	32.7
1972	2.96	2.96	55.5	55.5
1973	6.82	6.45	118.8	112.4
1974	4.88	4.25	77.8	67.7
1975	3.71	2.95	53.5	42.6
1976	5.42	4.10	73.3	55.4
1977	5.85	4.18	77.3	55.2
1978	6.03	4.01	77.0	51.2
1979	6.93	4.24	90.5	55.4
1980	7.00	3.92	92.8	51.9
1981	7.69	3.93	103.6	53.0
1982	5.50	2.66	72.3	34.9
1983	4.86	2.25	61.5	28.5

1/ Average market price times production.
2/ Deflated using the gross national product deflator, 1972 = 1.0.

Appendix table 9--Value comparisons for mohair

Year	Market value per goat clipped		Gross value of production 1/	
	Nominal	Real 2/	Nominal	Real 2/
	Dollars		Million dollars	
1950	4.14	7.73	9.7	18.1
1951	6.37	11.16	14.6	25.6
1952	5.38	9.29	11.4	19.7
1953	4.99	8.48	10.8	18.4
1954	4.16	6.99	10.2	17.1
1955	4.81	7.91	13.6	22.4
1956	5.01	7.98	15.0	23.9
1957	5.06	7.79	15.5	23.9
1958	4.54	6.87	14.8	22.4
1959	6.36	9.41	22.8	33.7
1960	5.76	8.38	21.4	31.1
1961	5.75	8.29	22.1	31.9
1962	4.70	6.66	19.0	26.9
1963	6.02	8.40	25.1	35.0
1964	6.29	8.64	27.4	37.7
1965	4.52	6.08	20.8	28.0
1966	3.47	4.52	15.5	20.2
1967	2.75	3.48	10.8	13.7
1968	3.03	3.67	11.4	13.8
1969	4.42	5.09	13.2	15.2
1970	2.58	2.82	7.0	7.7
1971	2.05	2.14	4.5	4.7
1972	5.56	5.56	8.5	8.5
1973	12.81	12.12	18.6	17.6
1974	9.79	8.52	11.5	10.0
1975	13.09	10.43	15.9	12.7
1976	21.87	16.53	24.1	18.2
1977	18.90	13.50	23.0	16.4
1978	31.30	20.81	37.2	24.7
1979	37.20	22.76	47.4	29.0
1980	24.84	13.91	30.8	17.2
1981	26.65	13.63	34.7	17.7
1982	19.17	9.27	25.5	12.3
1983	31.57	14.64	42.9	19.9

1/ Average market price times production.
2/ Deflated using the gross national product deflator, 1972 = 1.0.

Appendix table 10--World sheep population and world production, use, and ending stocks for wool 1/

Year	Sheep population	Production	Production	Consumption	Exports	Ending stocks
	Mil. head	Mil. lbs., greasy	Mil. lbs., clean	Mil. lbs., clean	Mil. lbs., greasy	Mil. lbs., clean
1965/66	928	5,731	3,291	3,405	3,200	106
1966/67	942	5,853	3,388	3,248	2,967	322
1967/68	951	5,997	3,470	3,453	3,354	311
1968/69	958	6,175	3,571	3,325	3,423	249
1969/70	962	6,131	3,543	3,308	3,141	225
1970/71	950	6,107	3,532	3,263	3,074	287
1971/72	937	5,972	3,452	3,480	3,304	165
1972/73	912	5,560	3,212	3,201	2,662	86
1973/74	921	5,474	3,157	2,783	2,209	234
1974/75	960	5,769	3,331	2,993	2,633	558
1975/76	943	5,911	3,391	3,341	3,043	445
1976/77	938	5,827	3,325	3,258	2,602	381
1977/78	1,012	5,838	3,276	3,264	2,714	315
1978/79	1,032	5,992	3,375	3,441	2,750	207
1979/80	1,059	6,177	3,477	3,472	2,642	220
1980/81	1,068	6,299	3,547	3,489	2,730	267
1981/82	1,088	6,373	3,599	3,464	2,582	364
1982/83	1,085	6,391	3,598	---	---	454
1983/84	---	6,422	3,616	---	---	---

--- = Not available.

1/ Sheep population during April-June of second year indicated for most countries. Consumption and exports are calendar year for the second year indicated for most countries. Stocks are for the countries that are both major producers and exporters.

Appendix table 11--Wool production and exports for three major foreign exporters

Year	Australia		New Zealand		Argentina	
	Production	Exports	Production	Exports	Production	Exports
	Million pounds, greasy					
1965/66	1,663	1,413	695	611	430	324
1966/67	1,762	1,448	709	500	441	242
1967/68	1,770	1,484	728	580	494	272
1968/69	1,949	1,556	732	680	461	249
1969/70	2,035	1,664	723	669	445	212
1970/71	1,964	1,508	736	649	441	177
1971/72	1,940	1,612	710	695	417	163
1972/73	1,620	1,546	681	635	390	179
1973/74	1,545	1,134	628	472	397	80
1974/75	1,750	1,091	648	482	406	138
1975/76	1,662	1,386	688	599	414	185
1976/77	1,550	1,606	668	557	388	179
1977/78	1,493	1,189	686	535	379	218
1978/79	1,552	1,381	708	571	377	172
1979/80	1,563	1,250	787	629	377	177
1980/81	1,543	1,324	840	618	375	222
1981/82	1,581	1,238	800	628	370	177
1982/83	1,548	1,196	818	710	357	144
1983/84	1,592	---	800	---	368	---

--- = Not available.