

Figure 7

Seasonal patterns in lamb slaughter, 1983-88

Index

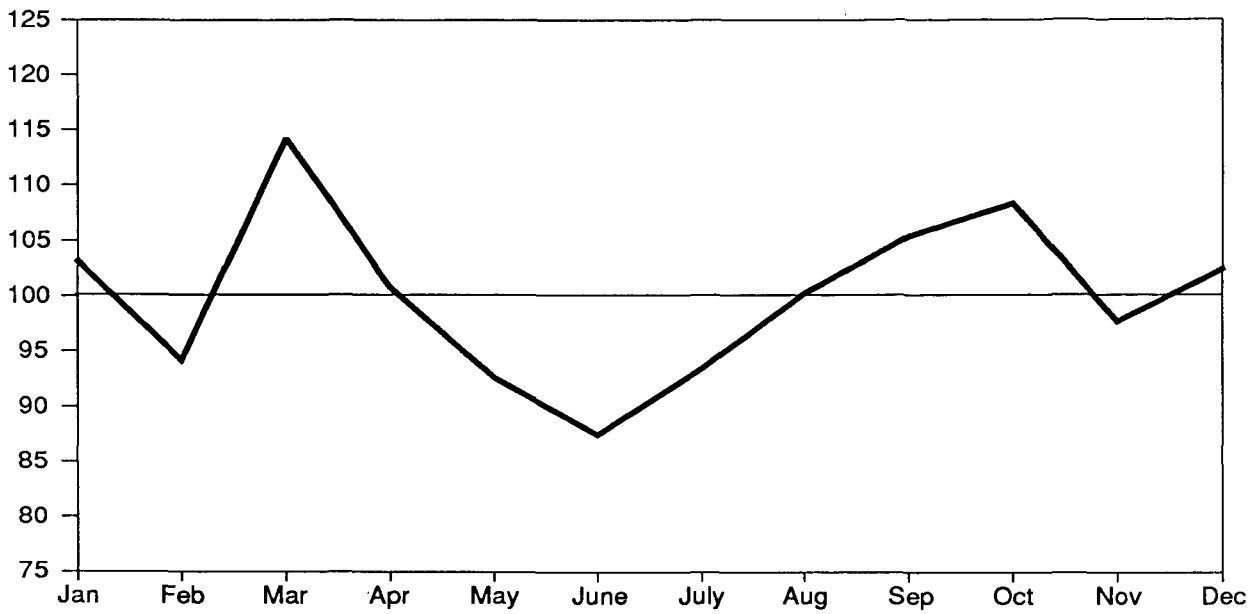


Figure 8

Wholesale prices of lamb and major meats

Dollars per cwt

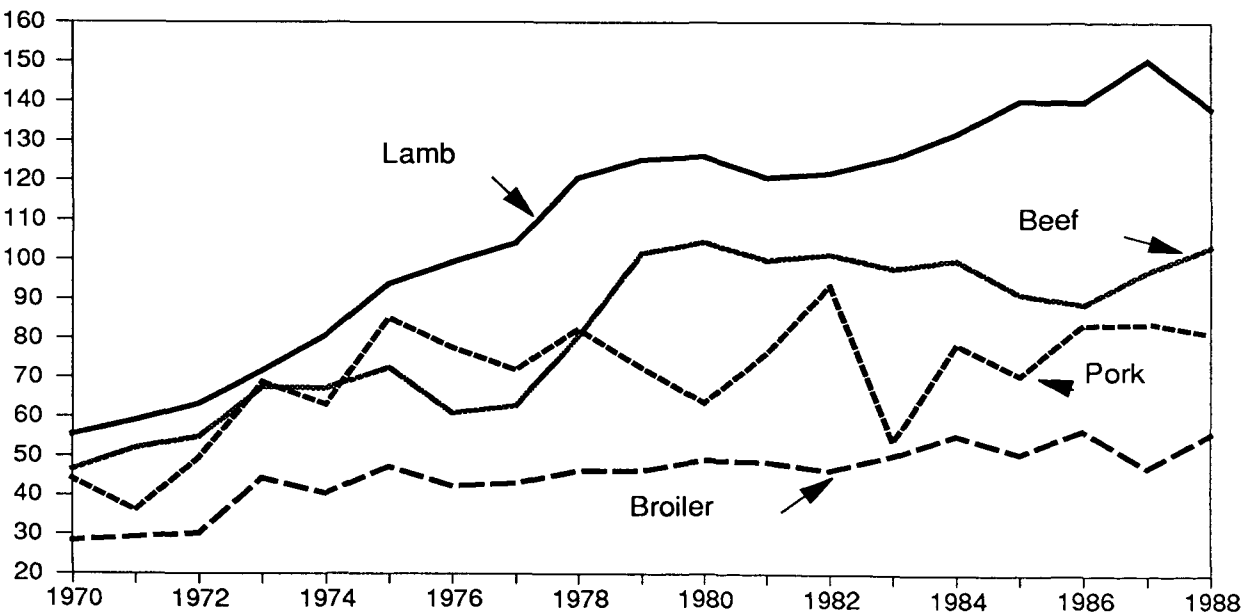


Figure 9

Wholesale lamb prices relative to selected meats

Percent

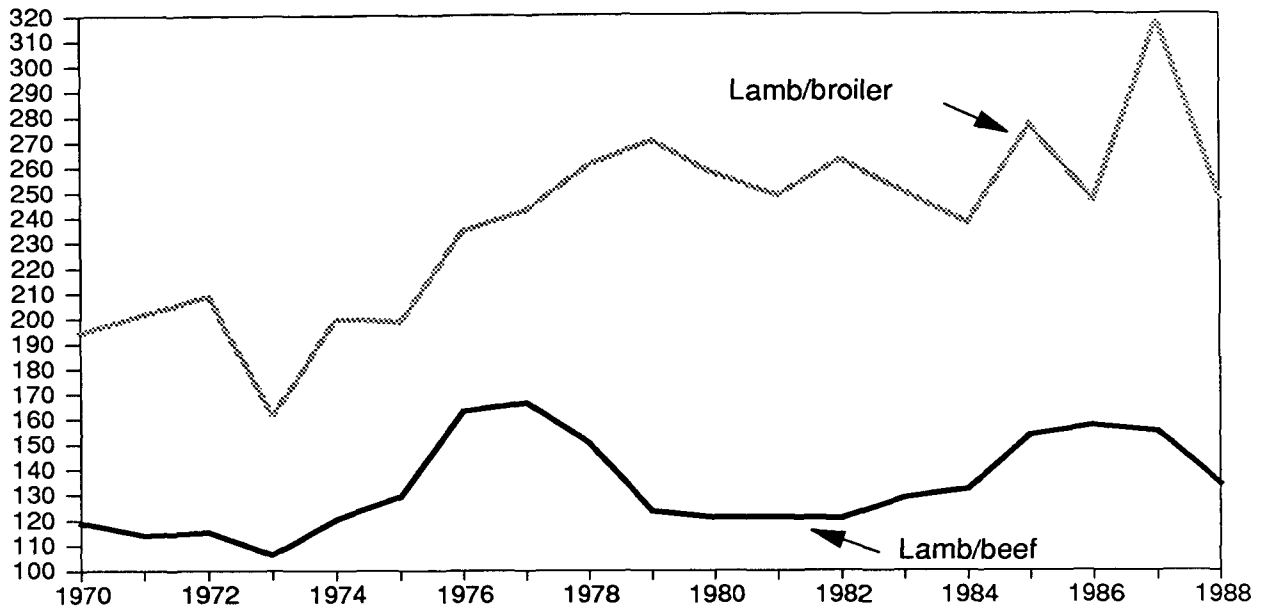
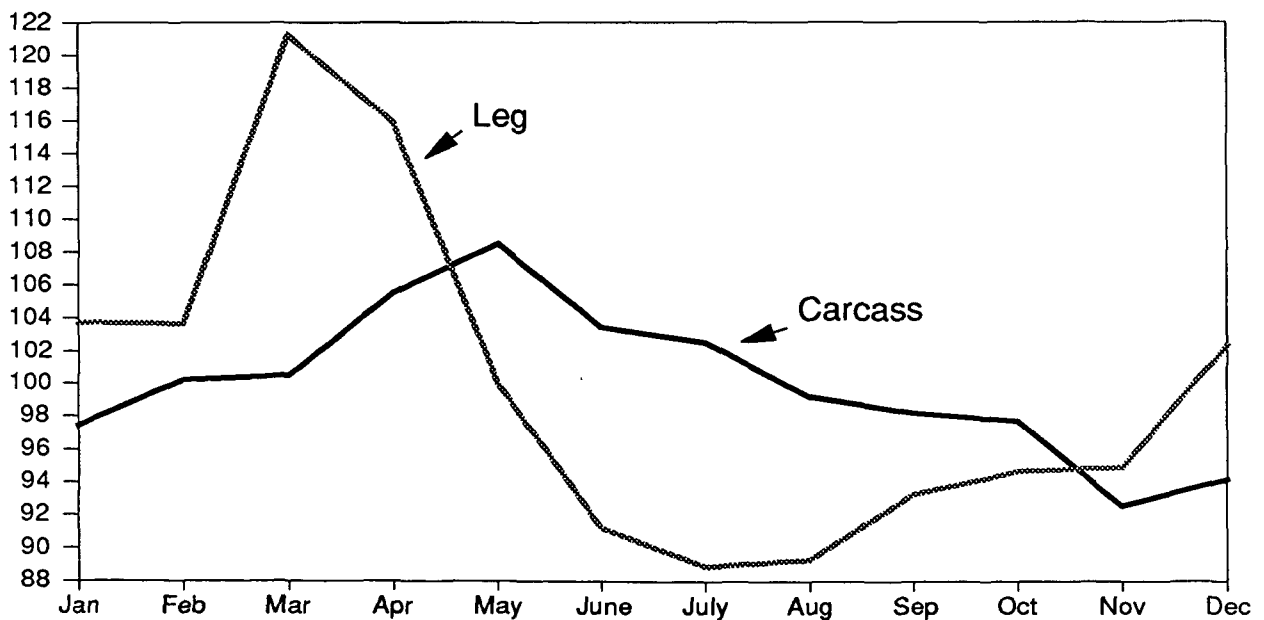


Figure 10

Seasonal patterns in wholesale lamb prices, 1976-88

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Feeder lamb prices vary with slaughter lamb prices and feed costs. Lambs usually stay on feed for 2-3 months; hence, the feeder lamb prices will lead the slaughter lamb price in seasonal peaks and troughs. Feeder lamb prices tend to peak in April and decline sharply until July; then they increase until the next April.

Recent Fluctuation in Lamb Prices

Lamb prices dropped dramatically in April 1988 from the March highs, which was counter to normal seasonal patterns. The prices continued to decline throughout the year, reaching year-earlier levels in November. The major cause of the decline in the slaughter lamb prices was the dramatic increase in domestic production in March, which resulted from increased slaughter and record-high slaughter weights (figs. 12-14). Production reached 34 million pounds in March 1988, compared with slightly under 28 million pounds in April 1987, the comparable Easter/Passover period.

The low of the current production cycle was probably reached in May 1987 (fig. 13). Expansion in 1988, coupled with an untimely bunching of production in March, disturbed the usual seasonal price pattern. Initial prices in 1988 were above 1987, but as production increased and slaughter weights reached record highs, prices fell after March, counter to the normal seasonal pattern. Thus, April and May prices in 1988 were considerably below the same months in 1987, reflecting the cyclical upturn in production, exacerbated by heavy slaughter weights. Extended feeding times in hopes of the expected seasonal price increases resulted in very heavy lambs, and prices were further discounted due to the fatter carcasses during spring and early summer 1988.

Coinciding with this downturn in lamb prices, a shipment of 9,000 live lambs from New Zealand was released from quarantine in March 1988. These lambs were equivalent to about 1-2 percent of average monthly production in the spring period. Nearly 8,700 of these lambs went into feedlots and were likely slaughtered sometime between late April and early June. The coincident timing led to concerns that the live lamb imports rather than the cyclical upturn in production and record heavy weights depressed prices. However, the quantity of live lambs imported was insufficient to explain the large drop in prices.

Lamb and Mutton Consumption

Lamb and mutton consumption, like all meat consumption series published by ERS, is an estimated net disappearance series (23). Consumption is determined as production plus imports and beginning cold storage stocks, minus exports, shipments to U.S. territories, and ending cold storage stocks. Mutton consumption is a very small part of total lamb and mutton consumption. Estimates of lamb consumption have been made since 1967, based on assumptions about the relative levels of stocks and exports (table 7). Domestic lamb production, on average 10 times as large as imports, is by far the largest source of supply.

Figure 11

Seasonal patterns in live lamb prices, 1976-88

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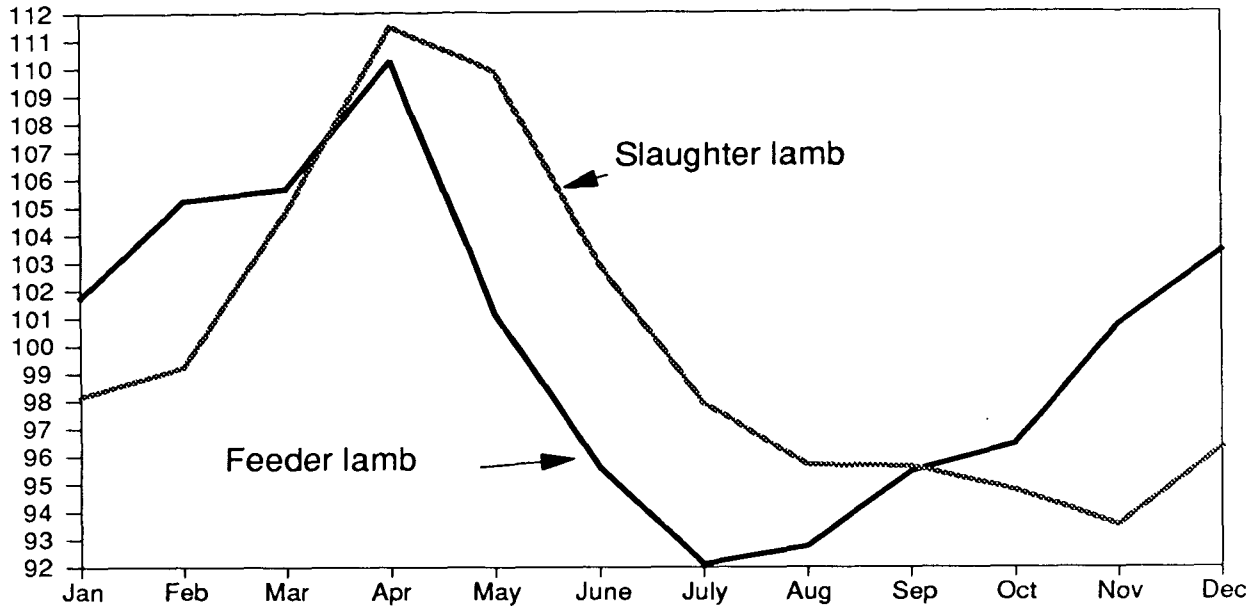


Figure 12

Monthly commercial lamb production

Million pounds

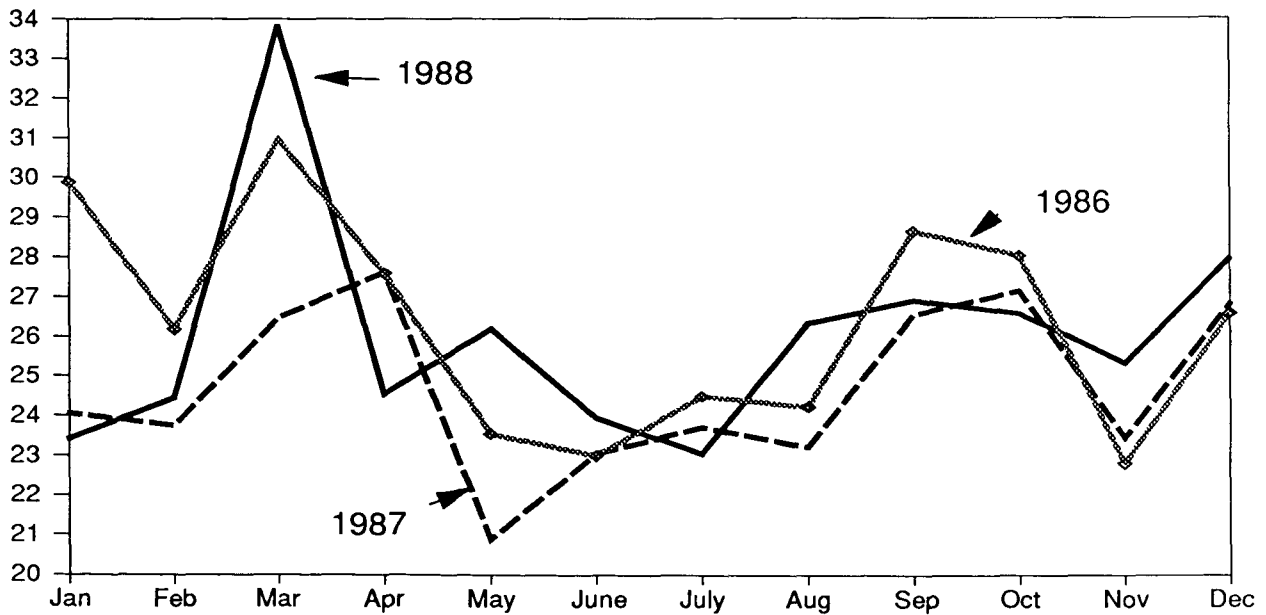


Figure 13

Monthly slaughter lamb prices San Angelo, TX

Dollars per cwt

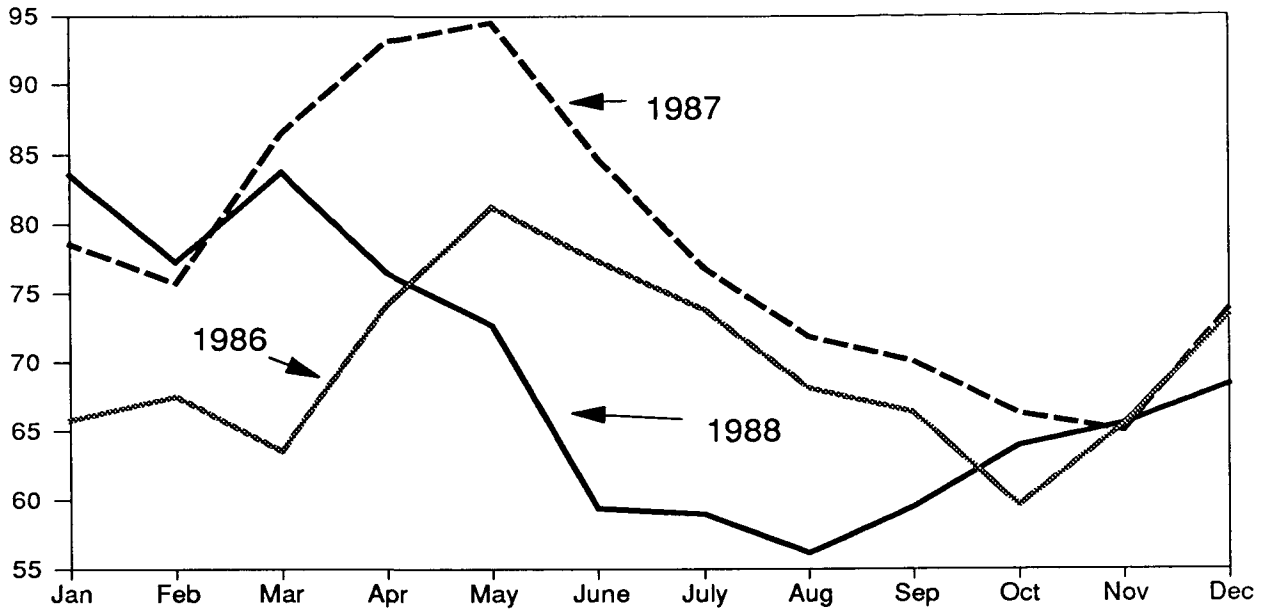
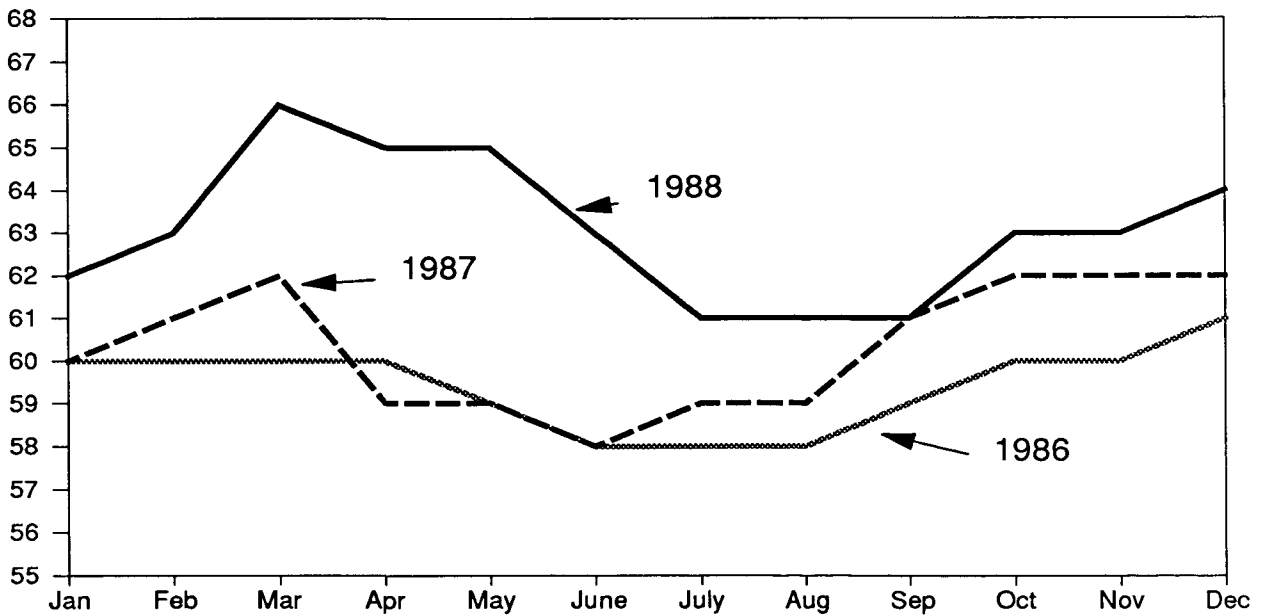


Figure 14

Federally inspected dressed weights of lambs

Pounds



Lamb and mutton consumption peaked on a per capita basis in 1945 at 7.3 pounds carcass weight (6.5 pounds retail weight). This was about 5 percent of red meat consumption. Consumption of lamb and mutton on a per capita basis reached a record low in 1987 at 1.3 pounds per person, retail weight (table 7). Lamb and mutton consumption in 1988 was estimated to have increased to 1.4 pounds, due mostly to domestic production increases.

Lamb and mutton consumption, like beef and pork consumption, as a percentage of total meat and poultry consumption has been declining, as increases in meat consumption have come from poultry (fig. 15). Lamb and mutton consumption has declined to less than 1 percent of red meat consumption and was 0.6 percent of total meat and poultry consumption in 1988 (fig. 16).

Broiler and turkey consumption has increased over time due mainly to lower relative prices, compared with beef, pork, and lamb. To a lesser extent, the gain in market share for the poultry industry has been a result of offering a perceived lower fat/cholesterol product, advertising, and development of new products. Beef, pork, and poultry industries have all been attempting to add new products that fit into modern lifestyles, such as prepared and further-processed products that can easily be used in a family where both adults work or in single-person households.

Survey data indicate that the lamb industry lacks a consumer base; only a very small percentage of consumers eat lamb (table 8). Nationwide cross-sectional consumer surveys done by USDA and reported by the National Research Council indicate the low levels of lamb consumption in the United States. The 1985 survey covered 1 day, and the 1977 survey covered a 2-week period that was sampled throughout the year. The low lamb consumption in both surveys is a reflection of how small the industry is relative to other meats.

The 1985 survey found that only 1 percent of the females (19-50 years of age) and only 0.5 percent of males (19-50) consumed lamb, veal, or game (19). Both of these percentages were down from the 1977 levels of 1.3 percent for females and 1.9 percent for males. Because veal and game consumption is included in the per capita basis with lamb, the true percentage of consumers eating lamb during the survey periods is probably half of the reported share. In holiday periods, consumption of lamb might be higher, but if gains are to be made in the consumer base for lamb, the industry must attract year-round consumers.

The lamb industry's challenge is to attract new consumers of relatively expensive red meat when red meats are losing their market share to poultry, due primarily to lower relative prices of poultry. Gains for the lamb industry depend on increasing the consumer base. Even though lamb has been sold in the United States for many years, its unfamiliarity makes it like a new product to most consumers.

Table 7--Lamb and mutton supply and use

Commodity and year	Supply					Use					
	Production		Beginning stocks	Imports	Total	Exports 1/	Shipments 2/	Ending stocks	Consumption		
	Commercial	Farm							Total	Per capita	Per capita
								Total	Carcass	Retail	
----- Million pounds -----											
Lamb and mutton:											
1967	636.0	10.0	17.0	121.0	784.0	6.0	0	5.0	763.0	3.84	3.42
1968	592.0	10.0	15.0	147.0	764.0	7.0	0	4.0	743.0	3.70	3.29
1969	540.0	10.0	14.0	153.0	717.0	6.0	0	6.0	695.0	3.43	3.05
1970	540.0	11.0	16.0	122.0	689.0	7.0	0	9.0	663.0	3.23	2.88
1971	545.0	11.0	19.0	103.0	678.0	8.0	0	9.0	651.0	3.13	2.79
1972	533.0	10.0	19.0	148.0	710.0	7.0	0	6.0	687.0	3.27	2.91
1973	502.0	10.0	16.0	53.0	581.0	6.0	0	5.0	560.0	2.64	2.35
1974	453.0	11.0	15.0	26.0	505.0	8.0	0	4.0	483.0	2.26	2.01
1975	400.0	11.0	14.0	27.7	452.7	8.0	0	2.0	432.0	2.00	1.78
1976	361.0	10.0	12.0	36.3	419.3	3.8	3.0	15.0	397.4	1.82	1.62
1977	340.0	10.0	15.0	22.5	387.5	4.6	1.5	10.0	371.4	1.69	1.50
1978	301.0	9.0	10.0	39.3	359.3	3.2	1.3	12.0	342.8	1.54	1.37
1979	282.0	9.0	12.0	44.4	347.4	1.4	1.6	11.0	333.4	1.48	1.32
1980	310.0	8.0	11.0	33.0	362.0	1.5	3.0	9.0	348.5	1.53	1.36
1981	328.0	10.0	9.0	31.1	378.1	2.4	2.4	11.0	362.3	1.57	1.40
1982	356.0	9.0	11.0	20.8	396.8	1.7	2.4	8.7	384.0	1.65	1.47
1983	367.0	8.0	8.7	18.1	401.7	1.4	2.2	11.0	387.1	1.65	1.47
1984	371.0	8.0	11.0	20.0	410.0	1.9	3.2	7.0	397.9	1.68	1.49
1985	352.0	7.0	7.0	36.5	402.5	1.0	2.5	13.0	386.0	1.61	1.44
1986	331.0	7.0	13.0	41.1	392.1	2.1	2.1	13.0	375.0	1.55	1.38
1987	309.0	7.0	13.0	44.0	373.0	1.5	2.4	7.9	361.2	1.48	1.32
1988	326.0	7.0	7.9	51.3	392.2	1.5	2.4	7.8	388.3	1.58	1.40
Lamb:											
1967	595.5	9.4	14.8	12.3	631.9	4.8	0	1.8	615.2	3.10	2.75
1968	556.5	9.4	11.8	22.9	600.6	5.4	0	3.3	582.0	2.90	2.58
1969	502.9	9.3	13.3	43.6	569.2	4.6	0	3.6	551.0	2.72	2.42
1970	504.1	10.3	13.6	43.5	571.5	5.9	0	7.7	547.9	2.67	2.38
1971	503.5	10.2	17.7	38.2	569.5	6.7	0	7.3	545.5	2.63	2.34
1972	498.7	9.4	17.3	37.3	562.6	5.7	0	3.9	543.0	2.59	2.30
1973	460.1	9.3	13.9	27.3	510.6	5.4	0	3.1	492.0	2.32	2.07
1974	426.3	10.4	13.1	17.8	467.6	7.5	0	3.4	446.7	2.09	1.86
1975	373.3	10.2	13.4	24.6	421.5	7.3	0	1.3	402.9	1.87	1.66
1976	341.5	9.5	11.3	34.2	396.5	3.6	2.0	4.2	375.8	1.72	1.53
1977	316.1	9.3	14.2	20.8	360.4	4.3	1.3	9.6	345.2	1.57	1.39
1978	282.6	8.5	9.6	38.0	338.6	3.1	1.2	11.4	323.0	1.45	1.29
1979	266.3	8.5	11.4	42.6	328.8	1.3	1.5	10.2	315.7	1.40	1.25
1980	290.2	7.5	10.2	33.0	341.0	1.4	2.9	8.7	328.1	1.44	1.28
1981	308.2	9.4	8.7	31.1	357.4	2.3	2.2	10.5	342.4	1.49	1.32
1982	332.5	8.4	10.5	18.7	370.1	1.6	2.3	8.0	358.2	1.54	1.37
1983	343.9	7.5	8.0	17.9	377.4	1.3	2.1	10.3	363.7	1.55	1.38
1984	342.9	7.5	10.3	18.3	378.9	1.8	2.9	6.6	367.7	1.55	1.38
1985	331.7	6.6	6.6	31.9	376.8	0.9	2.3	12.3	361.3	1.51	1.34
1986	315.9	6.7	12.3	29.3	364.2	1.9	1.9	11.7	348.6	1.44	1.28
1987	296.7	6.7	11.7	28.7	343.9	1.4	2.2	7.5	332.8	1.37	1.22
1988	308.5	6.7	7.5	29.5	352.2	1.4	2.1	7.0	341.7	1.39	1.24

1/ Prior to 1976 exports and shipments were combined.

2/ Shipments to U.S. territories.

Figure 15

Per capita meat consumption

Pounds

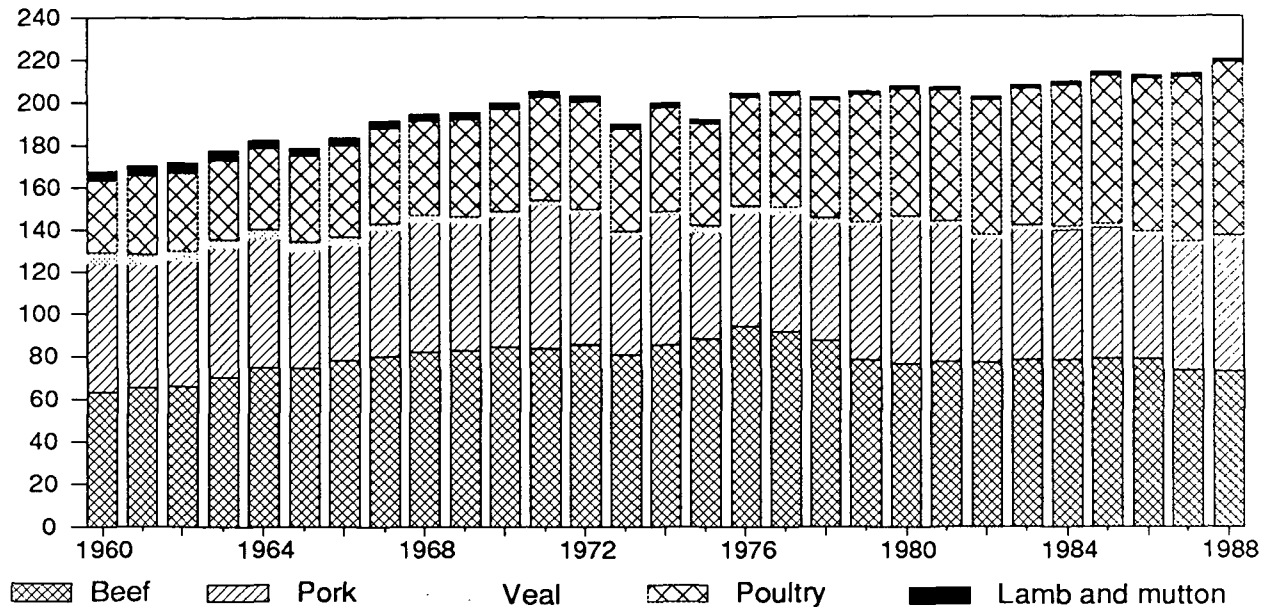


Figure 16

Lamb and mutton's share of meat consumption

Percent

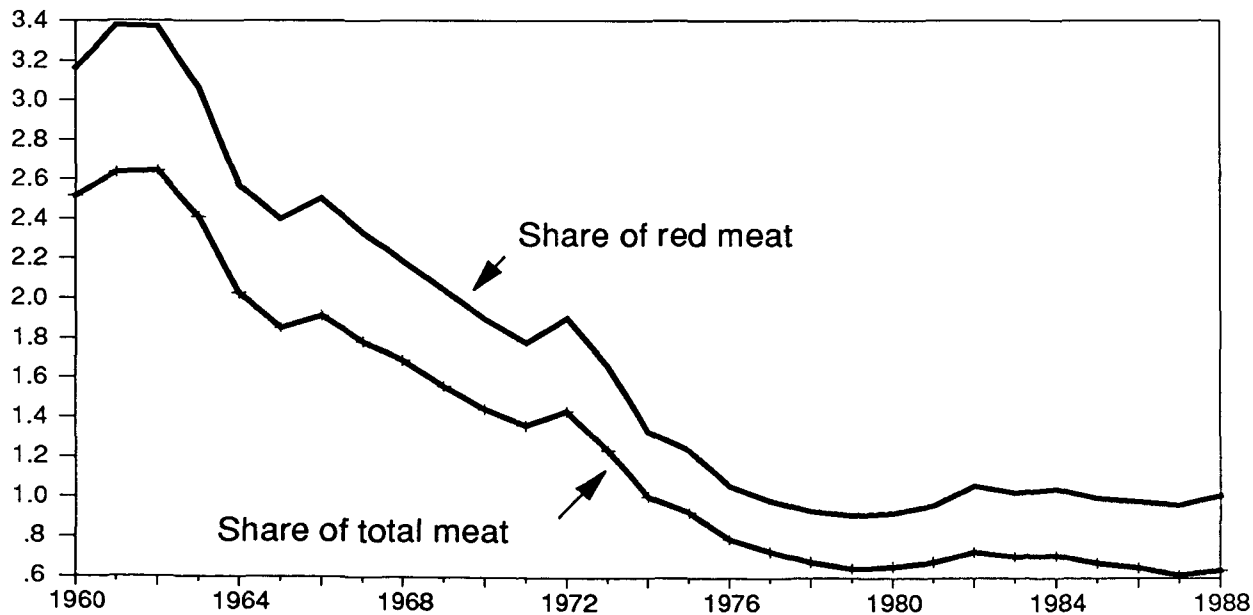


Table 8--Trends in meat, poultry, and fish consumption by age and sex 1/

Group and food	Mean intake		Share of per capita consumption	
	1977	1985	1977	1985
	- <u>Grams per day</u> -		- - <u>Percent</u> - -	
Children, 1-5 years old:				
Beef	21	14	29.1	17.5
Pork	7	7	20.5	16.2
Lamb, veal, and game	<u>2/</u>	1	.3	1.4
Organ meats	<u>2/</u>	<u>2/</u>	.7	.3
Frankfurter, sausages, and luncheon meats	15	12	33.1	28.2
Chicken	17	16	17.0	19.6
Fish and shellfish	5	5	7.0	8.1
Mixtures <u>3/</u>	45	45	34.7	32.0
Females, 19-50:				
Beef	49	27	34.9	23.1
Pork	18	14	24.0	20.5
Lamb, veal, and game	1	1	1.3	1.0
Organ meats	1	1	.9	1.0
Frankfurter, sausages, and luncheon meats	16	13	25.1	24.6
Chicken	22	19	16.1	16.8
Fish and shellfish	11	13	9.8	11.5
Mixtures <u>3/</u>	65	88	33.2	37.1
Males, 19-50:				
Beef	80	52	42.0	28.3
Pork	28	26	28.2	25.3
Lamb, veal, and game	3	1	1.9	.5
Organ meats	2	1	1.4	.4
Frankfurter, sausages, and luncheon meats	32	27	35.7	31.4
Chicken	28	23	14.0	13.3
Fish and shellfish	14	21	8.5	11.4
Mixtures <u>3/</u>	105	110	39.0	39.7
	<u>Survey participants</u>			
	1977		1985	

	<u>Number</u>	
Children, 1-5 years old	690	548
Female, 19-50 years old	2,228	1,503
Male, 19-50 years old	1,778	1,134

1/ The 1977 survey was for a 2-week period; the 1985 survey was for 1 day.

2/ Values are less than 0.5 grams per day, but more than zero.

3/ Mixtures are mainly meat, poultry, or fish.

Source: (19).

Some promotion funds are available from a checkoff in the wool support program. The American Sheep Industry Association receives these funds to promote wool and lamb products. In 1987, \$4 million were set aside to promote these products. Beef, pork, and poultry are increasing both checkoff and private promotion funds. The lamb industry will likely need to consider increasing the promotion of its product just to hold its market share. Promotion of imported lamb by Australia and New Zealand in the United States may increase demand for domestic lamb because of the current lack of U.S. consumer awareness.

Lamb Imports

The United States imports both sheep meat and live animals. Live animal imports have never been large, and the United States has been a net exporter of live animals. However, the United States has been a net importer of lamb meat and mutton. Mutton is covered under Public Law 96-177, the Meat Import Act of 1979, which restricts by a single quota the importation of certain fresh, chilled, and frozen beef, veal, mutton, and goat meat products. Lamb imports are not included under the Meat Import Act. Lamb and mutton imports have been declining since 1960, along with domestic production and consumption.

Trends in Imports

Data separating lamb and mutton imports show that mutton was the prominent meat imported in the late sixties and early seventies, (fig. 17). Lamb imports have varied from as little as 12 million pounds in 1967 to 44 million pounds in 1969 (fig. 18). Lamb imports reached another peak in 1979 and then trended downward during the early eighties as domestic production expanded cyclically. The variation in lamb imports appears to depend on domestic prices; imports rise when cyclical declines in domestic production raise prices. Conversely, U.S. imports decline when domestic production is high and prices are low.

Lamb imports during the current production cycle have varied from a high of 16 percent of domestic consumption in 1979 to a low of 5 percent in 1983 (fig. 19). Lamb imports since 1984 have been in the 9- to 10-percent range of domestic consumption and are expected to remain in this range over the next several years.

New Zealand was the largest exporter of lamb to the United States until 1987, when Australia became the largest supplier (fig 20). The switch was due in part to the imposition of a countervailing duty on New Zealand lamb by the U.S. International Trade Commission because of New Zealand's agricultural policies.

Fresh Lamb Imports

Imports of fresh products as opposed to frozen products from both New Zealand and Australia have become a large proportion of lamb

Figure 17

U.S. lamb and mutton imports

Million pounds

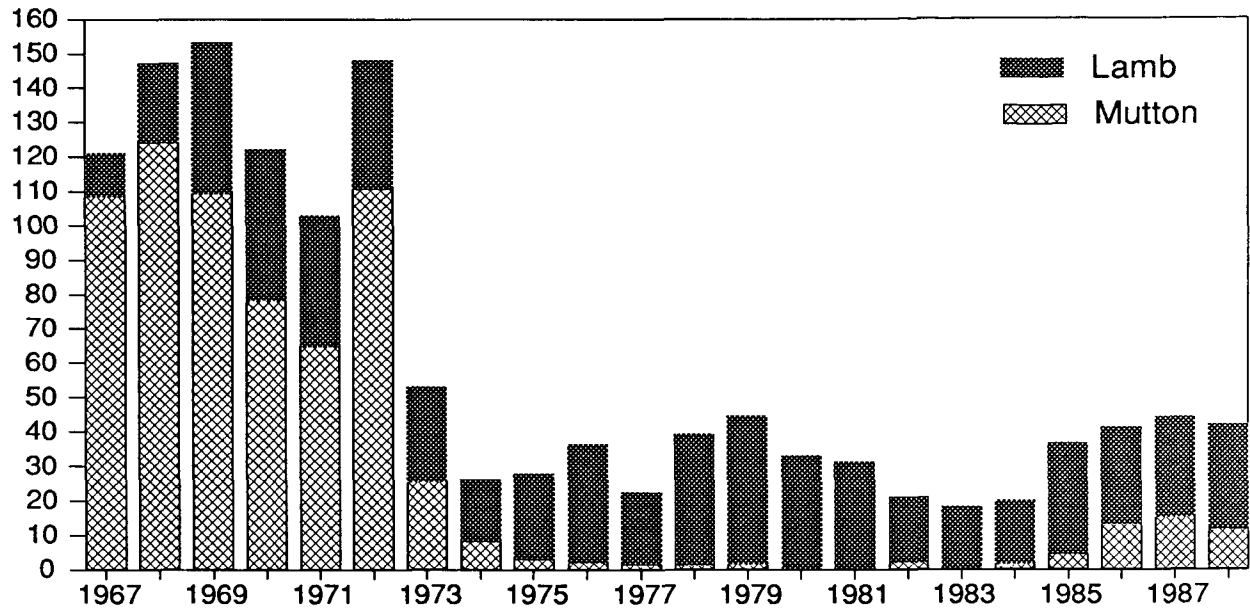


Figure 18

U.S. lamb imports

Million pounds

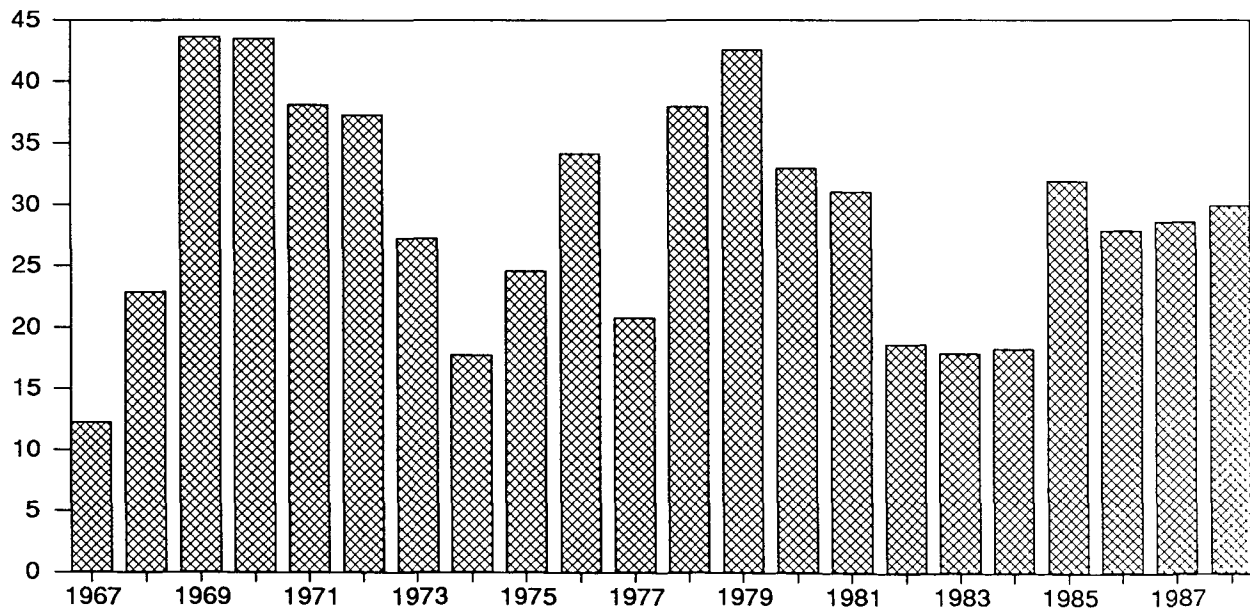


Figure 19

Lamb imports as a share of domestic production

Percent

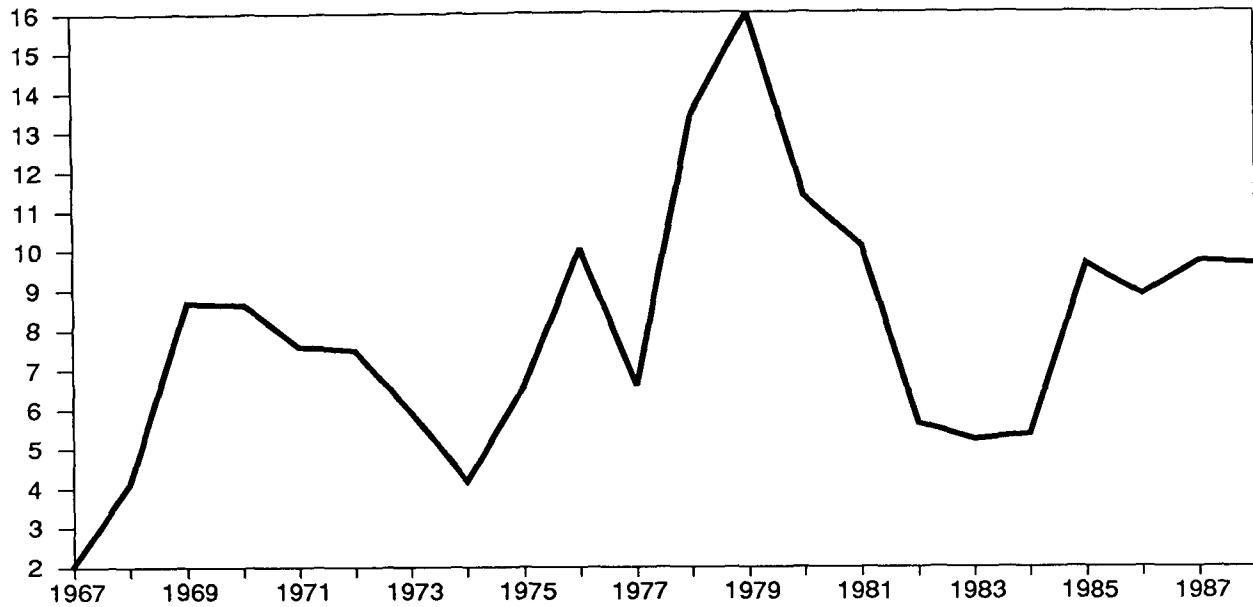
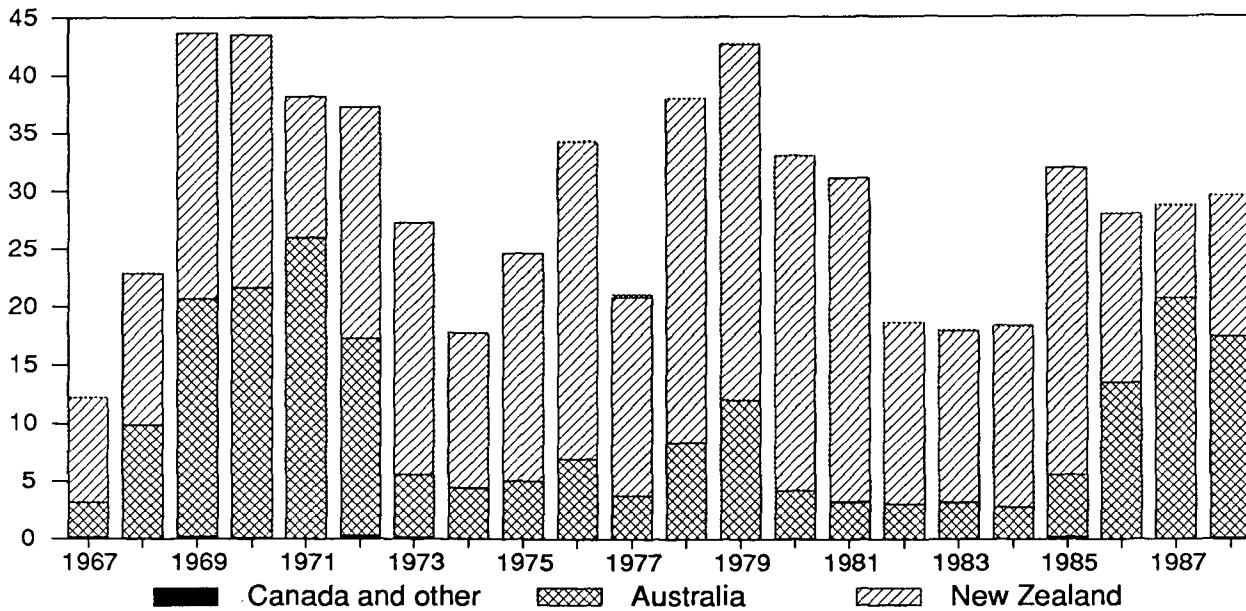


Figure 20

U.S. lamb imports by country of origin

Million pounds



imports during the past several years (fig. 21). During January-September 1988, 60 percent of the Australian lamb exports to the United States were fresh. Of this fresh lamb, approximately 98 percent was cuts and 2 percent was carcasses (table 9). Nearly 15 percent of New Zealand exports to the United States was fresh, while 85 percent was frozen during January-September 1988 (table 10).

The largest part of Australian lamb exports to the United States, both fresh and frozen during July 1981-June 1988, were legs. Legs accounted for 32 percent of the total lamb exports (including carcasses) and 43 percent of the cuts (table 11). During this period, loins, shoulders, and racks were 14, 8, and 10 percent of the total.

Legs from Australia accounted for 58 percent of the fresh lamb cuts imported by the United States during July 1981-June 1988, but declined to 43 percent in the June 1987-July 1988 period. As fresh imports to the United States have increased from about 322 metric tons in the 1981/82 period to over 5,661 in the 1987/88 period, the mixture of cuts has moved closer to the composition of the carcass.

Live Lamb Trade

The U.S. Department of Commerce does not identify imports of live animals as sheep or lambs, or for slaughter or breeding. The United States has generally been a net exporter of live animals, trading mostly with Canada and Mexico (table 12). Most U.S. sheep exports, generally cull ewes, have gone to Mexico. Most of the live trade between the United States and Canada is in breeding animals or movements across the border to slaughter facilities.

Seasonality of Imports

U.S. imports of lamb are heaviest in March through May, usually peaking in April much like domestic production (fig. 22). Foreign suppliers, as well as domestic producers, respond to peak prices in the United States and the peak production period in the Southern Hemisphere. New Zealand exports to the United States tend to peak in May, with high levels in March and April. Australian exports have been the largest in March and April but are also large in January. The proportion of Australian imports in March and April has been increasing.

Conclusions

The decline in the U.S. sheep industry since World War II is not the result of one factor but rather many factors that have compounded each other over time. The sheep industry has become a specialty industry and makes up only 0.6 percent of total U.S. meat consumption. Unless there is a major change in the demand for lamb that would raise returns and attract new producers, the

Figure 21

U.S. fresh lamb imports as a percentage of total

Percent

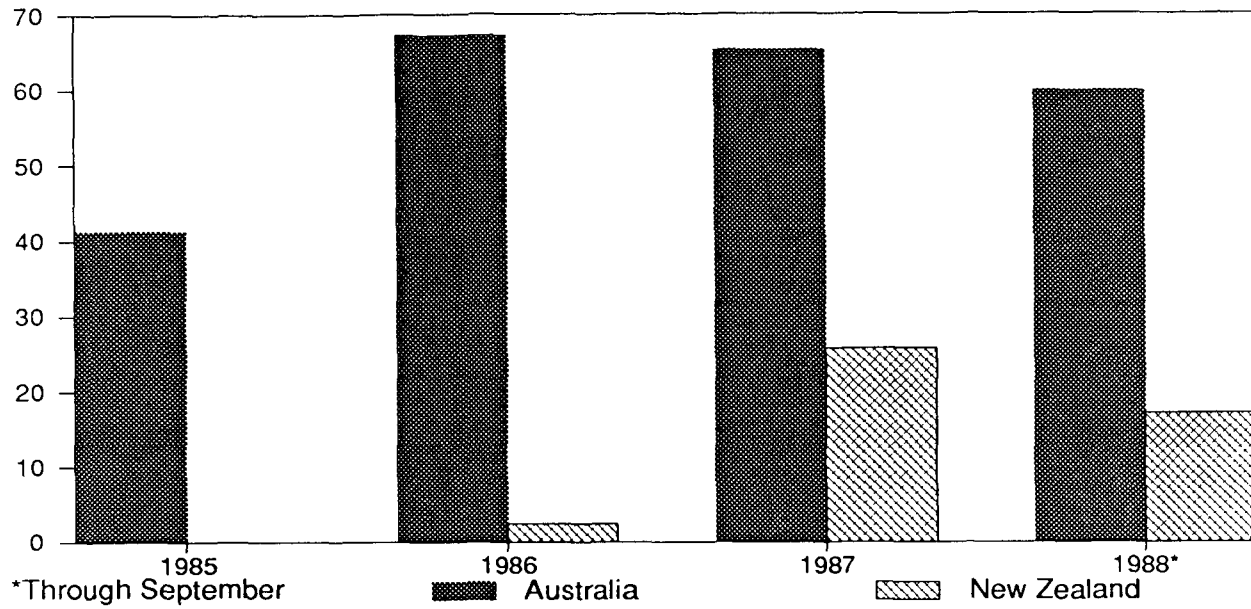


Figure 22

Seasonal patterns of U.S. lamb imports, 1967-88

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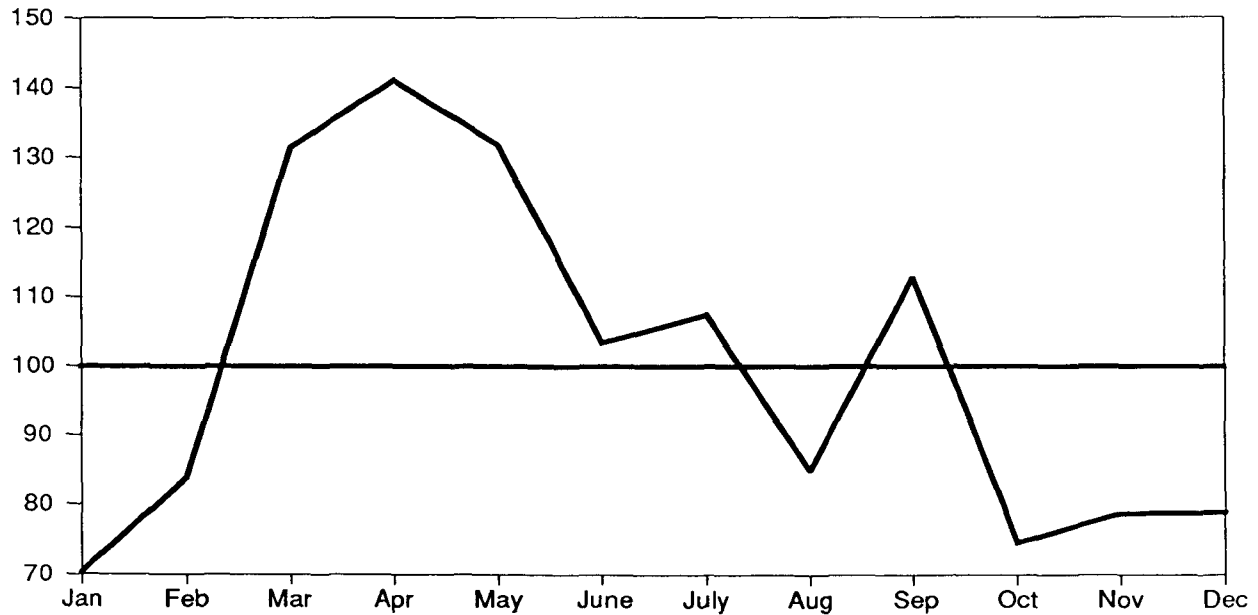


Table 9--Australian lamb exports to the United States

Item	East Coast				West Coast				U.S. total
	Bone in		Boneless		Bone in		Boneless		
	Carcass	Cuts	Carcass	Cuts	Carcass	Cuts	Carcass	Cuts	
<u>Metric tons</u>									
Chilled:									
1985									
January	0	0	0	0	0	47.9	0	0	47.9
February	0	0	0	0	2.8	47.3	0	0	50.1
March	0	0	0	0	1.4	85.0	0	0	86.4
April	0	0	0	0	7.7	37.5	0	0	44.7
May	0.6	0.3	0	0	3.3	22.5	0	0	26.7
June	2.0	0	0	0	10.7	55.0	0	0.8	68.5
July	25.4	2.3	0	0	10.2	33.2	0	0	71.1
August	22.6	2.4	0	0	18.2	51.9	0	.2	95.3
September	23.4	10.2	0	0	24.9	18.2	0	0	77.1
October	28.0	30.9	0	0	41.2	77.0	0	.1	177.2
November	42.9	41.7	0	0	35.8	67.0	0	.1	187.5
December	29.5	11.5	0	0	46.1	94.7	0	.9	182.7
Year	174.4	99.3	0	0	202.5	636.7	0	2.5	1,115.2
1986									
January	51.6	41.1	0	6.2	67.7	135.1	0	.2	301.9
February	57.1	78.9	0	2.7	64.1	108.7	0	6.7	318.2
March	52.1	90.1	0	.5	74.0	219.9	0	1.1	437.7
April	44.7	83.1	0	.6	94.8	116.1	0	1.3	340.6
May	15.7	13.6	0	0	92.2	137.3	0	.6	259.4
June	3.0	2.4	0	0	110.9	114.6	0	1.7	232.6
July	0	0	0	0	137.6	130.4	0	1.2	269.2
August	0	0	0	0	130.3	138.9	0	1.8	271.0
September	0	2.7	0	0	122.0	176.6	0	2.4	303.7
October	0	6.8	0	0	169.5	197.5	0	3.5	377.3
November	6.9	1.4	0	0	137.8	215.0	0	0	379.6
December	0	0	0	0	156.7	249.9	0	18.7	425.3
Year	231.1	338.1	0	0	1,357.6	1,940.0	0	57.7	3,934.5
1987									
January	0	0	0	0	138.2	209.2	0	7.8	355.6
February	0	0	0	0	192.1	177.5	0	7.4	377.0
March	0	0	0	0	419.9	405.7	0	33.5	859.1
April	5.3	0	0	0	411.1	381.1	0	37.7	835.2
May	0	0	0	0	374.6	321.8	0	11.4	707.8
June	0	0	0	0	327.6	278.4	0	13.5	619.6
July	0	0	0	0	209.0	272.8	0	11.3	494.0
August	0	0	0	0	167.7	222.6	0	8.6	398.9
September	0	0	0	0	151.5	238.0	0	13.0	402.5
October	0	0	0	0	127.4	315.5	0	14.9	457.8
November	0	0	0	0	118.6	271.6	0	23.9	414.1
December	0	0	0	0	45.3	292.3	0	15.3	352.9
Year	5.3	6.0	0	.7	2,683.9	3,386.9	0	198.3	6,275.7
1988									
January	0	0	0	0	230.4	298.0	0	11.5	540.2
February	0	0	0	0	121.9	422.5	0	21.2	565.6
March	0	0	0	0	157.9	574.3	0	54.2	786.4
April	0	0	0	0	204.2	265.2	0	14.6	484.4
May	0	0	0	0	115.6	275.0	0	17.6	408.2
June	0	0	0	0	127.6	217.4	0	10.4	355.4
July	7.9	0	0	0	53.4	129.5	0	6.8	197.6
August	0	0	0	0	23.0	181.7	0	23.3	228.0
September	1.3	0	0	0	32.8	106.0	0	12.2	152.3
Year 1/	9.2	0	0	0	1,066.8	2,470.3	0	171.1	3,718.1

Continued--

See footnotes at end of table

Table 9--Australian lamb exports to the United States--Continued

Item	East Coast				West Coast				U.S. total
	Bone in		Boneless		Bone in		Boneless		
	Carcass	Cuts	Carcass	Cuts	Carcass	Cuts	Carcass	Cuts	
<u>Metric tons</u>									
Frozen:									
1985									
January	0	6.0	0	49.6	0	23.8	0	35.9	115.3
February	7.6	7.3	0	66.7	0	31.2	0	9.1	121.5
March	21.4	23.3	0	49.8	7.4	47.6	0	16.7	166.2
April	0	15.3	9.2	64.4	0	50.9	0	52.4	192.2
May	1.3	4.4	0	26.8	0	36.2	0	4.4	73.1
June	0	10.4	0	59.2	0	12.1	0	27.5	109.2
July	1.3	21.0	0	93.9	-1.3 <u>2/</u>	49.2	0	0	164.1
August	0	27.3	0	64.7	0	39.1	0	13.5	144.6
September	1.4	16.6	0	115.9	0	25.1	0	0	159.0
October	0	6.0	0	54.7	0	47.0	0	4.7	112.4
November	0	12.9	0	60.1	0	0	0	0	73.0
December	3.3	30.7	0	55.1	0	66.7	0	0	155.8
Year	36.3	181.1	9.2	760.9	6.1	428.9	0	164.2	1,586.7
1986									
January	1.0	21.8	0	66.2	0	12.8	0	21.5	124.3
February	7.6	49.6	0	49.7	0	91.0	0	4.6	202.5
March	14.3	59.3	0	37.4	0	12.4	0	0	123.4
April	7.3	75.1	0	33.6	0	104.5	0	0	220.5
May	7.3	51.3	0	16.7	0	105.7	0	4.6	185.6
June	11.0	10.7	2.8	87.0	0	27.6	0	0	139.1
July	0	32.5	0.3	12.6	0	21.8	0	0	67.2
August	7.7	36.8	0	19.7	0	46.2	0	0	110.4
September	7.2	0.7	16.9	0	0	74.0	0	0	98.8
October	20.3	82.5	0	4.1	2.4	70.1	0	0	179.4
November	13.9	75.8	13.2	21.6	0	44.0	0	0	168.5
December	21.2	74.0	0	0	10.4	190.4	0	0	296.0
Year	118.8	570.1	33.2	348.6	12.8	801.8	0	30.7	1,916.0
1987									
January	15.0	0	0	0	0	17.0	0	0	32.0
February	21.4	78.6	0	23.0	7.4	120.9	0	.4	251.7
March	7.0	104.4	0	0	0	155.2	0	0	266.6
April	6.5	171.2	0	11.1	0	165.1	0	0	367.7
May	8.4	148.5	0	26.7	0	86.3	0	20.0	289.9
June	8.4	144.0	0	22.8	0	155.3	0	19.1	349.6
July	35.2	151.9	0	12.0	0	112.7	0	13.3	325.1
August	0	58.0	33.7	20.6	11.3	121.0	0	47.7	292.3
September	43.7	32.5	0	53.6	20.2	116.9	0	17.6	284.5
October	15.1	172.4	0	15.1	19.8	94.2	0	16.6	333.2
November	23.9	99.4	0	8.9	0	85.9	0	7.1	225.2
December	10.4	166.3	0	47.2	0	99.8	0	0	323.7
Year	178.2	1,327.2	33.7	33.7	214.0	58.7	0	155.6	3,324.7
1988									
January	0	155.0	0	17.8	0	90.3	0	0	263.1
February	8.0	158.0	0	19.3	5.2	94.1	0	19.2	303.8
March	11.5	267.9	0	0	30.5	1167.1	0	21.5	498.5
April	7.4	118.9	0	0.6	8.6	112.1	0	5.1	252.7
May	14.3	177.6	0	0.6	0	131.9	0	11.4	335.8
June	0	105.5	0	12.5	0	159.8	0	19.1	349.6
July	0	0	0	0	0	67.3	0	10.7	78.0
August	0	106.0	0	17.2	0	51.9	0	12.9	188.0
September	4.3	121.1	0	12.9	0	107.4	0	35.2	280.9
Year <u>1/</u>	45.5	1,210.0	0	111.4	13.8	981.9	0	136.1	2,498.7

1/ Year to date2/ Statistical correction.

Source: (5).

Table 10--New Zealand lamb exports to the United States

Month	1986		1987		1988	
	Chilled	Frozen	Chilled	Frozen	Chilled	Frozen
<u>Metric tons</u>						
January	20	1,091	37	57	53	6
February	66	1,899	25	53	55	96
March	5	539	58	127	88	476
April	22	2,224	55	177	94	469
May	9	356	26	212	59	664
June	35	1,237	49	244	106	732
July	0	350	36	349	67	652
August	25	706	51	325	81	431
September	15	626	40	410	NA	NA
October	7	455	78	239	NA	NA
November	28	334	110	157	NA	NA
December	11	80	43	14	NA	NA
Total	243	10,077	608	2,364	603	3,526

NA = Not available.

Source: (20).

Table 11--Australian lamb exports to the United States, year ending June

Period 1/	Carcass	Cuts								Total carcass and cuts
		Boneless, manufac- turing	Legs	Loins	Racks	Should- ers	Breast	Fore- shank	Assorted cuts	
<u>Metric tons</u>										
Total:										
1981/82	223.39	181.35	1,086.71	25.14	64.20	16.37	0	41.61	0	1,638.76
1982/83	192.01	147.93	672.97	146.1	99.59	23.22	0	31.54	0	1,313.39
1983/84	581.72	245.87	594.46	224.49	77.49	39.75	4.18	35.23	0.37	1,740.33
1984/85	166.77	397.21	498.80	242.80	138.09	111.65	0	46.48	.02	1,601.19
1985/86	1,132.06	568.51	1,230.35	470.77	415.39	298.10	2.35	194.22	192.29	4,504.04
1986/87	2,892.41	75.95	2,066.03	882.89	772.62	881.12	41.45	367.82	261.58	8,241.87
1987/88	2,055.29	120.15	2,946.91	1,050.68	1,043.61	1,246.04	12.80	639.00	283.04	9,397.51
Fresh:										
1981/82	151.09	0	144.43	9.85	.10	16.37	0	0	0	321.84
1982/83	143.55	0	175.60	137.25	.03	4.92	0	0	0	462.35
1983/84	35.81	0	326.08	177.98	1.14	4.57	0	0	0	545.61
1984/85	28.45	1.42	362.03	170.10	.44	1.89	0	.69	0	569.01
1985/86	1,076.02	22.39	829.34	323.11	126.32	129.92	.03	.06	192.12	2,699.30
1986/87	2,729.83	1.18	1,291.39	630.59	451.45	410.83	1.38	3.47	260.71	5,780.82
1987/88	1,777.90	27.13	1,686.08	731.44	622.01	512.86	2.52	18.55	282.92	5,661.40
Frozen:										
1981/82	72.30	181.35	942.28	15.29	64.10	0	0	41.60	0	1,316.92
1982/83	48.46	147.93	497.37	8.87	99.56	18.31	0	31.54	0	852.04
1983/84	482.91	245.87	268.18	46.48	76.35	35.18	4.18	35.19	.37	1,194.72
1984/85	138.33	395.79	136.13	72.17	137.66	109.75	0	45.79	.02	1,036.17
1985/86	56.04	546.12	401.01	147.67	289.07	168.18	2.32	194.16	.17	1,804.74
1986/87	162.58	74.76	774.65	252.30	321.17	470.30	40.08	364.35	.87	2,461.04
1987/88	277.39	93.03	1,260.83	319.24	421.60	733.18	10.28	620.45	.11	3,736.11

1/ Period begins July 1 and end June 30 of the next year.

Source: (6).

level of production will likely cycle around present levels in the foreseeable future.

The main challenge to the U.S. lamb industry is to expand consumption of a relatively expensive red meat in a market where poultry is capturing more of the red meat market because of lower relative prices. Furthermore, only a small segment of the population consumes lamb, which means that the industry also needs to attract new consumers to expand consumption.

U.S. imports and domestic production of lamb have both declined at about the same rate, indicating that the decline in the lamb industry is not the result of import penetration, but due mainly to a decline in consumer demand. Imports have been counter-cyclical, attracted into the United States when production declines lead to higher prices.

An increasing proportion of U.S. lamb imports have been fresh product, particularly from Australia. Australia has been an innovator in the delivery of fresh lamb to the United States. The Australians have also been promoting their lamb to U.S. consumers in a much more visible way than the U.S. industry. The Australians appear to be trying to establish a broader consumer base, which in the long run could benefit the U.S. industry.

Most sheep production is located in the Western United States because sheep are one of the few animals that can effectively use the forage in many mountain and arid areas. If sheep are not used to harvest the forage in these areas, these resources will remain idle. In fact, many of the sheep permits on U.S. Government grazing land are idle because sheep producers are leaving the industry.

ERS costs and returns information indicates that stock sheep

Table 12--U.S. live sheep and lamb imports and exports

Year	Exports	Imports	Year	Exports	Imports
	<u>1,000 head</u>			<u>1,000 head</u>	
1970	133	12	1980	124	21
1971	214	5	1981	221	7
1972	159	14	1982	281	9
1973	204	10	1983	221	16
1974	291	1	1984	317	24
1975	339	3	1985	363	22
1976	244	5	1986	122	28
1977	205	9	1987	42	33
1978	142	11	1988	175	37
1979	125	9			

production has been profitable more often than domestic cattle production, on an equivalent resource base. This indicates that sheep require higher returns than cattle to attract the intensity of management necessary in sheep production. Management and labor problems persist in the industry because sheep are susceptible to disease and predators. Because sheep are excellent foragers in arid areas, sheep tending is a lonely existence that does not appeal to many people.

Sheep producers have confronted the problem of labor intensity by reducing the amount of labor required to produce a pound of lamb and by increasing the weights of lambs slaughtered. This has been done through genetics and feedlot finishing.

The sheep industry has benefited from U.S. Government programs. In 1987, 17 percent of stock sheep receipts were Government payments from the wool program. In many years, the wool program has been the difference between profits and losses for the U.S. sheep industry.

Lamb has become a specialty product in the United States. Per capita consumption of lamb was 1.2 pounds in 1988, less than 0.6 percent of meat and poultry consumption. As the infrastructure of the industry shrinks, small-scale production and distribution tend to increase the costs of processing live animals into meat. Such costs are generally borne by both consumers and producers. It is important to know that U.S. imports have declined along with U.S. production in the domestic market, indicating that the industry's problem is a lack of a consumer base. The lamb industry will likely need to consider the costs and benefits of increasing the promotion of its product to attract a broader consumer base.

The industry has adjusted to a long-term decline unmatched by any other livestock sector. Producers' returns have consistently been positive in recent years, and marketing facilities and slaughtering plants have been adjusted to gain scale economies for a declining industry.

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Appendix A--Wool

Wool is a joint product of the sheep industry, along with lamb and mutton. Wool receipts annually accounted for 25-35 percent of stock sheep receipts. The largest proportion of these wool receipts are payments from a U.S. Government support program that has been in effect since 1954. Government payments for wool have helped to improve the profitability of the sheep industry, likely slowing, but not stopping, the industry's decline.

Trends in Domestic Wool Production

U.S. wool production has declined proportionally to the decline in the U.S. sheep inventories. Unlike lamb production, wool production has shown no significant gain in output per animal. The domestic wool production record was 338 million pounds in 1942. In 1988, the amount was 90.4 million pounds, less than a fourth of the peak production.

Domestic wool production has also declined as a percentage of domestic use. U.S. imports of raw wool were approximately twice that of domestic production in 1988. The biggest effect has been on imports of wool fabric. Wool fabric imports were more than double raw wool products on an equivalent basis in 1988 (24).

Domestic wool prices during the past few years have been increasing, as demand increased in the international market. Factors affecting wool prices are fashion, relative fiber prices, price variability, and overall economic activity (7).

Domestic wool prices have been supported by various U.S. Government programs since 1938 (7). The Agricultural Act of 1954 (Title VII) provided for the present wool and mohair support program, as renewed under each farm law. A base rate of \$0.62 per pound was established by the law. The Food and Agricultural Act of 1965 introduced a formula that adjusts the base rate. This rate is adjusted by the ratio of the average parity index (as calculated by USDA and published in Agricultural Prices) for the preceding 3 years divided by the average parity index for the period 1958 (29). The ratio for the 1988 support price uses the 1985-87 parity indexes.

Actual payments to producers depend on the price that they have received for their wool. A payment rate is established by the Agricultural Stabilization and Conservation Service by a formula. This formula bases the payment rate for wool on the percentage that the support price exceeds the market price. For example, the support price for 1987 was \$1.81 per pound and the average farm price received by farmers was \$0.917. This resulted in a payment rate of 97.4 percent ($(\$1.81/\$0.917)-1$). A producer receiving \$3.00 a pound for wool would receive \$2.92 per pound in payments, less the promotion fee. Payments to producers under the program in 1987 were \$65 million, less \$4 million for promotion.

Appendix B--World Sheep Production

The United States has a very small sheep industry, compared with many other countries (app. table 1). In 1987, the United States ranked 13th among the major sheep-producing countries, with an inventory of 10 million head. Australia was the largest with 159 million head, followed by the USSR. China had the third largest sheep population with approximately 108 million head, and New Zealand was the fourth largest with 69 million head.

Many of the leading sheep-producing countries are also major wool-producing countries (app. table 2). Australia is by far the largest wool-producing country. In the marketing year October 1987 to September 1988, Australia produced 917,000 metric tons of wool, which was almost twice the level of the next highest producer, the USSR, with 477,000 metric tons. New Zealand was the third largest producer with 355,000 metric tons during this period. China was the fourth largest producer, 208,000 metric tons. The United States is the 14th largest wool producer in the world.

Countries with large per capita sheep populations have become large exporters of lamb and mutton (app. table 3). New Zealand was the largest exporter of lamb, mutton, and goat (481,000 metric tons) in the world in 1988. Australia was the second largest exporter with 237,000 metric tons. The European Community (EC) was the third largest exporter of lamb, mutton, and goat; however, a great deal of this trade was intra-EC.

Appendix table 1--World sheep and lamb inventories 1/

Country	1984	1985	1986	1987	1988	1989
	<u>1,000 head</u>					
United States	11,487	10,443	9,983	10,334	10,774	11,000
Argentina	33,938	29,441	29,243	28,998	29,202	29,502
Uruguay	23,337	22,777	24,808	25,707	27,365	28,420
European Community	57,275	52,218	54,051	54,705	56,567	57,922
Belgium-						
Luxembourg	120	134	147	149	151	153
Denmark	38	40	52	70	73	90
France	11,882	11,580	11,241	10,580	10,360	9,986
West Germany	1,218	1,300	1,296	1,383	1,414	1,449
Greece	9,962	10,029	10,122	10,000	10,512	10,694
Ireland	2,537	2,690	2,774	2,917	3,252	3,387
Italy	10,745	11,098	11,300	11,451	11,487	11,500
Netherlands	766	814	868	985	1100	1150
Portugal	2,493	2,743	3,000	3,118	3,180	3,219
Spain	17,554	17,520	17,300	17,600	17,894	18,000
United Kingdom	23,317	23,946	24,540	25,976	27,820	29,000
Eastern Europe:						
Bulgaria	10,978	10,500	9,724	9,563	8,886	8,975
Czechoslovakia	1,041	1,068	1,087	1,087	1,087	1,087
East Germany	2,359	2,528	2,587	2,647	2,710	2,700
Hungary	2,977	2,832	2,465	2,337	2,336	2,310
Poland	2,493	3,920	4,112	4,300	4,075	4,075
Romania	18,451	18,637	18,609	18,762	18,900	19,400
Yugoslavia	7,459	7,679	7,693	7,819	7,824	7,899
USSR	145,265	142,876	140,850	142,210	140,783	142,000
Turkey	47,650	47,772	47,000	43,500	40,000	36,500
Egypt	1,157	1,450	1,500	1,550	1,650	1,685
South Africa	31,265	30,256	29,481	29,728	29,640	30,155
India	51,130	52,770	54,460	55,482	51,684	50,986
Australia	139,242	149,747	155,561	158,800	164,590	171,310
New Zealand	70,263	69,739	67,854	69,204	64,244	64,800
China <u>2/</u>	95,200	94,200	100,500	107,800	---	---

--- = Not available.

1/ Data for 1988 are preliminary; data for 1989 are forecast.

2/ Commonwealth Secretariat (8).

Source: (27).

Appendix table 2--World wool production, year ending September

Country	1977-82 average	1983	1984	1985	1986	1987	1988
<u>1,000 greasy metric tons</u>							
Australia	702	702	728	814	830	887	917
New Zealand	347	371	364	373	358	350	355
United Kingdom	49	50	54	56	58	59	62
India	35	35	35	35	35	30	33
Lesotho	2	3	3	3	3	3	3
Canada	1	2	2	2	2	1	1
Falkland Islands	2	2	2	2	2	2	3
Other							
Commonwealth	4	5	5	5	5	5	5
Argentina	170	162	162	150	152	150	152
South Africa	105	113	108	105	98	90	92
United States	49	49	47	44	41	39	40
Uruguay	69	82	82	71	87	90	90
Turkey	59	62	62	60	61	61	61
Spain	28	30	31	32	31	32	32
Brazil	30	28	25	30	28	28	30
Pakistan	37	41	45	48	49	50	51
France	24	25	25	24	24	24	24
Chile	20	22	21	21	21	20	22
Iran	16	16	16	16	16	16	16
Morocco	18	13	16	15	15	15	15
Iraq	18	18	17	17	17	17	18
Yugoslavia	10	10	10	10	10	10	10
Italy	12	13	13	13	13	13	14
Portugal	9	9	9	9	9	9	9
Peru	11	12	12	12	12	12	12
Ireland	8	7	7	7	7	8	8
Greece	10	10	10	10	10	10	10
West Germany	5	5	5	5	5	6	6
Other Asia	60	63	64	66	61	69	69
Other Africa	71	71	74	86	94	93	93
Other America	20	21	21	21	22	21	21
Other Western							
Europe	10	11	11	11	12	12	12
USSR	470	474	485	488	468	492	477
Romania	36	39	39	42	44	44	44
Bulgaria	35	35	36	36	34	33	32
Hungary	11	13	13	12	11	11	10
Poland	13	12	13	15	17	18	19
East Germany	11	13	12	15	15	16	16
Czechoslovakia and Albania	7	8	8	8	8	8	8
China	160	202	194	183	178	183	208
Mongolia	20	21	20	20	19	19	19

Source: (8).

Appendix table 3--Lamb, mutton, and goat meat supply and use

Year	1984	1985	1986	1987	1988	1989
<u>1,000 metric tons carcass weight</u>						
Production:						
Argentina	95	92	86	82	83	86
Australia	450	552	584	591	589	619
Bulgaria	103	112	113	110	110	110
China	586	593	620	690	800	880
EC-12	908	914	881	997	1,045	1,074
India	48	499	517	486	531	535
New Zealand	667	727	611	583	572	536
Other countries	357	371	407	381	382	392
South Africa	231	219	198	201	203	205
Turkey	375	380	385	382	380	375
United States	172	162	153	143	151	155
USSR	866	880	894	905	810	915
Imports:						
EC-12	278	301	296	620	317	327
Intra-EC	200	221	197	203	199	199
Japan	149	159	159	153	155	160
Korea	11	15	14	16	18	19
Other countries	8	21	14	12	10	11
United States	9	16	19	20	25	27
USSR	30	21	26	35	35	35
Exports:						
Australia	129	168	221	207	237	250
Bulgaria	7	7	4	4	7	12
EC-12	77	90	101	119	136	153
India	52	35	35	22	20	15
Korea	23	21	15	13	14	15
Other countries	44	39	38	39	40	33
New Zealand	528	544	522	490	481	451
Romania	23	21	30	30	30	30
Turkey	47	40	45	45	45	45
United States	1	1	1	1	1	1
Consumption:						
Argentina	79	80	76	75	75	77
Australia	307	382	364	383	356	369
Bulgaria	81	89	87	81	81	81
China	586	593	620	690	800	880
EC-12	1,119	1,118	1,094	1,197	1,223	1,248
India	458	478	502	473	517	520
Japan	155	155	165	150	160	160
New Zealand	138	176	158	93	92	92
South Africa	231	219	200	203	206	207
Turkey	323	330	346	355	365	370
United States	182	174	171	164	175	181
USSR	896	901	919	939	944	949

Source: (27).

Appendix C--Australian and New Zealand Sheep Production

As in the United States, Australian and New Zealand sheep producers use sheep to harvest forage that might otherwise go unused. Australian sheep production is located in semi-arid areas where sheep excel at foraging. Sheep producers in Australia, like those in the United States, tend also to be in the cattle and crop business. New Zealand, on the other hand, is not as arid as Australia but has a large supply of grass that producers use for both sheep and cattle.

Australia

Australia has the largest sheep population in the world. They forage on a large area of semi-arid land ideally suited to sheep production, much like parts of the Western United States. The major difference between the U.S. and Australian sheep industries is the dependence on wool production by the Australian sheep producers. Wool is by far the major product and source of revenue for the Australian sheep industry.

Australian Sheep Production

Australian sheep producers tend to have multienterprise farms. Wool is by far the largest receipt category of the Australian sheep producer, accounting for 66 percent of their receipts in 1986-87 (app. table 4). During 1953-84 on average, wool sales accounted for 41 percent of the receipts of a sheep farm; sheep, 14 percent; wheat, 26 percent; cattle, 8.5 percent; and other crops, 7.5 percent (18).

Lamb and mutton exports are a major use of domestic sheep production in Australia. Australia exported approximately 40 percent of its lamb and mutton production in 1988 (27). Because of the dependence of the Australian sheep industry on wool production, mutton exports are larger than lamb exports. The largest market for mutton is the Middle East and Japan. Lamb exports in 1988 were only 32 percent of the total Australian lamb and mutton exports (app. table 5). Lamb exports go mainly to the Middle East and the United States. The U.S. share of the Australian lamb export market has increased during the past 4 years. The U.S. share of Australian lamb exports in 1988 was about 19 percent.

Australians, on average, ate 49 pounds of lamb and mutton (carcass weight basis) in 1988 (27). This is approximately 30 times the per capita consumption of lamb in the United States. This indicates that there is a domestic market for lamb and mutton in Australia that does not exist in the United States.

New Zealand

The New Zealand sheep industry differs from the Australian sheep industry to a great extent because of climatic differences. New Zealand has a much more lush vegetation than does Australia, and the New Zealanders use sheep to harvest this vegetation. The

Appendix table 4--Australian sheep farm survey results, per farm

Item	Unit	1985-86	1986-87
Total farm area as of June 30	Hectares	6,095	6,737
Wheat sown	do.	10	8
Sheep carried as of June 30	Number	3,941	3,954
Beef cattle carried as of June 30	do.	54	60
Area harvested:			
Wheat	Hectares	4	7
Other grains	do.	13	11
Wheat harvested	Metric tons	7	10
Sheep sold	Number	1,381	1,235
Beef cattle sold	do.	27	21
Sheep and lambs shorn	do.	4,404	4,249
Wool produced	Kilograms	18,223	18,302
Labor used	Weeks	106	NA
Cash receipts:			
Sales--			
Sheep	Aus\$	21,322	24,860
Beef cattle	do.	8,345	6,930
Other livestock	do.	363	710
Wool	do.	63,059	73,550
Wheat	do.	890	1,140
Other crops	do.	2,503	1,500
Off-farm sharefarming	do.	490	200
Off-farm contracts	do.	1,717	1,510
Other income	do.	1,733	1,500
Total cash receipts	do.	100,422	111,900
Cash costs:			
Purchases--			
Sheep	do.	6,703	8,740
Beef cattle	do.	1,462	2,000
Hired labor	do.	5,178	3,120
Sharing and crutching	do.	8,353	8,010
Materials	do.	23,388	23,890
Services	do.	21,623	22,170
Interest	do.	11,806	10,260
Rent	do.	1,186	1,170
Payment to sharefarmers	do.	89	290
Other cash costs	do.	725	530
Total cash costs	do.	80,512	80,180
Farm cash operation surplus	do.	19,910	31,720

NA = Not available.

Source: (4).

Appendix table 5--Australian lamb export, year ending
June 30

Exports/ destination	1984/85	1985/86	1986/87	1987/88
	<u>1,000 metric tons</u>			
Lamb:				
Middle East	16.4	20.6	21.5	17.1
United States	1.6	4.5	8.2	9.4
Japan	5.9	8.1	6.3	4.9
EC	.3	.6	5.2	3.9
Canada	.5	1.3	2.1	1.9
Other	.5	8.8	9.5	11.7
Total	32.4	49.3	52.9	48.9
Mutton:				
Middle East	21.3	34.9	40.3	27.5
Japan	.2	29.1	26.1	27.4
Malaysia/Singapore	6.4	6.1	8.7	8.3
EC	10.1	7.0	7.5	6.2
United States	.6	2.4	4.4	6.0
Other	8.2	14.8	23.1	28.8
Total	66.6	94.3	110.1	104.2

Source: (5).

climatic differences have resulted in the New Zealand producers using different breeds of sheep. New Zealand breeds are meat-type sheep that produce a coarser wool. Hence, New Zealanders rely more on meat products for their livelihood.

New Zealand sheep production is usually a joint enterprise with a cattle operation. Sheep meat and wool returns were roughly equivalent until 1985-86 (app. table 6). After this period, wool receipts increased, while sheep receipts dropped off. Part of the reason for the shipment of live sheep from New Zealand to the United States in 1988 is the low prices New Zealand producers have been receiving for their lambs.

New Zealand is the largest exporter of lamb and mutton in the world. Exports of lamb were 89 percent of domestic production from October 1986 to September 1987. USDA's Foreign Agricultural Service estimates that New Zealand exports of lamb, mutton, and goat for 1988 were about 858 million pounds (carcass weight) or 93 percent of domestic production. New Zealand, unlike Australia, produces more lamb for export than mutton, reconfirming the reliance on meat production as opposed to wool production for their domestic industry. The United States made up less than 1 percent of New Zealand lamb exports in 1987 (app. table 7).

As in Australia, domestic consumption of lamb and mutton is fairly high on a per capita basis in New Zealand. New Zealand domestic per capita consumption of lamb was 13.8 kilograms (30.4 pounds) and mutton was 26.2 kilograms (57.8 pounds) in 1987.

Appendix table 6--New Zealand sheep and beef farm income and expenditures per farm

Year	1983-84	1984-85	1985-86	1986-87	1987-88
	<u>New Zealand dollars</u>				
Income:					
Wool	38,448	46,954	42,400	48,800	54,900
Sheep	36,154	44,411	24,957	31,500	28,700
Cattle	14,023	21,745	18,824	19,900	18,900
Deer	-403	121	899	1,000	1,400
Goat	26	300	181	300	200
Crop	14,205	16,444	15,589	13,200	11,700
Other	2,322	2,648	3,469	2,700	2,800
Total gross income	104,775	132,623	106,319	117,400	118,600
Expenditures:					
Fertilizer, lime, and seeds	10,801	14,146	8,201	8,900	8,700
Repairs and maintenance	8,539	9,387	7,142	6,300	6,600
Interest	16,305	17,736	21,509	24,600	25,700
Other	50,639	57,146	54,128	54,900	56,900
Total farm expenditures	86,284	98,415	90,980	94,700	97,900
Net farm income	18,491	34,208	15,339	22,700	20,700

Source: (20).

Appendix table 7--New Zealand meat production and consumption, year ending September 1/

Meat	1987				1988 production estimates
	Production		Consumption		
	Quantity	Share of total	Quantity	Per capita	
	1,000 metric tons	Percent	1,000 metric tons	Kilograms	1,000 metric tons
Beef	540.0	44.7	134.9	37.8	537.2
Veal	15.1	1.2	1.8	.5	15.2
Mutton	203.3	16.8	86.7	26.2	188.6
Lamb	406.6	33.6	45.5	13.8	418.0
Pigmeat	44.4	3.7	46.9	14.2	44.6
Total	1,209.4	100.0	315.8	92.5	1,203.6

1/ Meat quantity is bone-in carcass weight.

Source: (20).

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