MEAT INDUSTRY REVIEW

Production of meat for export is New Zealand's largest single export activity, earning approximately one third of the country's total export receipts. It has made New Zealand the world's largest exporter of sheep meats and fifth largest exporter of beef and veal products.

The following survey is a review of the main economic features of the New Zealand meat industry and developments over the last twenty years. It describes, for readers with limited knowledge of the industry, some of the main features, institutional structure and influences which have shaped the industry's structure and development. The survey replaces the usual *Bulletin* review covering developments only in the latest season.

NEW ZEALAND LIVESTOCK PRODUCTION

New Zealand has a comparative advantage in the production of meat arising from a temperate climate which has been exploited through the use of specialised systems of pasture management designed specifically to meet local conditions. This has facilitated the development of a livestock farming industry characterised by intensive open range feeding and very high level of output per unit of labour employed.

The meat industry began as an offshoot of the wool industry, initially limited to supplying the domestic market plus small export canning and tallow operations. However, with the advent of refrigeration in the latter part of the nineteenth century it became feasible to ship meat to markets in Europe and this formed the basis for the export industry of today.

For many years the industry was concentrated on the production of lamb and mutton for export to the United Kingdom. This was a natural development, given the British origins of most New Zealanders, the British liking for sheep meats and the origin of the industry as essentially a by-product of the wool industry. Over the last thirty years, however, world-wide developments have taken place which have enhanced the importance of meat production while tending to diminish the role of wool in New Zealand's export industries. Among these have been the growth in demand for meat protein in countries, such as Japan and those of the Middle East, where living standards have risen rapidly during the period; relatively strong demand from countries such as the U.S.S.R., and continued development of the North American market for lamb and beef. On the other hand, the growth of synthetic fibre production as substitutes for natural fibres has represented a major depressing influence on the market for New Zealand wool.

The growth in beef production has been a relatively recent phenomenon, largely aimed at meeting a demand for lean meat for use in processed meats for the fast foods industry in the United States. In earlier years beef cattle were kept mainly as an adjunct to sheep farming, being used principally to control surplus feed and to clear areas of scrub and fern for future grazing for sheep.

The meat industry is heavily oriented towards exporting with almost 90 percent of the lamb produced in New Zealand being exported, while around 70 percent of the beef and 60 percent of the mutton is exported. Pigmeat production, based on grain or dairy industry by-products, does not share the comparative advantage enjoyed by the sheep and beef cattle sectors of the industry and is not a significant part of this export activity, being largely confined to supplying the domestic market.

Lambs for export are largely drawn from flocks of dual purpose sheep bred for meat and wool production although a significant proportion are bred specifically for meat production being the progeny of dual purpose ewes and meat breed rams. These are early maturing and are normally slaughtered between sixteen and thirty two weeks of age. Mutton for export is obtained from older sheep, generally ewes about to be culled from flocks on account of their age. For this reason the most common end-use for mutton is in processed meats where tenderness and delicate flavour are not so important.

Beef for export comes from two sources; from dairy herds when cows are culled for age or production reasons, or surplus calves are slaughtered for white veal production; and from sheep and beef cattle farms where beef cattle are carried solely for their beef production potential and usually slaughtered at two-three years of age for prime beef or at older ages when culled after serving as breeding stock for some years. A large proportion of the prime cattle slaughter goes to supply the domestic market while about three quarters of the beef exported is manufacturing quality beef derived from the older animals culled from beef and dairy herds and manufacturing quality cuts from prime beef.

Table 1 shows total livestock numbers for both sheep and cattle during the 1960s and 1970s. As can be seen, between 1960 and 1970 beef cattle numbers grew rapidly (67 per cent) while sheep numbers, expanding more slowly, grew by only 28 per cent during the same period. In the early 1970s sheep numbers declined while growth in cattle numbers continued. However, this pattern was

TABLE 1
NEW ZEALAND LIVESTOCK NUMBERS
(Thousands of Animals)

	Sheep (as at 30th June)		*Cattle (as at 31st January)*		
	Breeding Ewes	*Total*	*Dairy*	*Beef*	*Total*
1960	32,633	47,134	2,973	3,019	5,992
1961	33,592	48,462	3,111	3,334	6,446
1962	33,945	48,988	3,136	3,462	6,598
1963	34,989	50,190	3,133	3,558	6,691
1964	35,702	51,292	3,128	3,568	6,696
1965	31,178	53,748	3,174	3,628	6,801
1966	39,668	57,343	3,362	3,856	7,218
1967	41,408	60,030	3,506	4,241	7,747
1968	42,651	60,474	3,698	4,549	8,247
1969	43,385	59,937	3,793	4,812	8,605
1970	42,911	60,276	3,729	5,048	8,777
			(as at 30th June)		
1971	43,017	58,913	3,198	4,796	7,995
1972	44,152	60,883	3,288	5,344	8,632
1973	41,017	56,684	3,159	5,765	8,924
1974	40,366	55,883	3,074	6,237	9,311
1975	41,108	55,320	2,998	6,294	9,292
1976	41,200	56,390	2,924	6,088	9,017
1977	42,782	59,105	2,899	5,840	8,739
1978	44,515	62,163	2,911	5,507	8,418
1979	46,108[1]	63,523[1]	2,900	5,122	8,022
1980	48,245	68,772	2,969	5,162	8,131

Source: Department of Statistics.
(1) There was a slight inconsistency in the method used to compile sheep statistics in this year estimate to yield a figure about 350,000 sheep too high.

reversed in the mid-1970s with beef cattle numbers declining by 18 per cent between 1975/76 and 1978/79 and sheep numbers growing by 13 per cent in the same period.

A number of factors contributed to these trends. In the early 1960s there was a strong stimulus to increase farm production. Generally buoyant export prices and widespread scope for increased production through the application of fertilizer and seeds by aeroplane encouraged the development of new pasture lands and more intensive use of existing pasture. However, in the 1966/67 season demand for wool dropped to a very low level and prices did not fully recover from this collapse for five years. This reduced the profitability of sheep farming at a time when the outlook for beef was bright and encouraged the diversification into beef production.

Steadily rising prices for beef peaked in 1972/73 before collapsing disasterously over the following two seasons. The momentum of beef herd expansion continued through those two seasons before farmers, seeing little prospect of improved prices, began to liquidate some of their beef herds. For sheep, too, 1972/73 saw a sharp recovery in prices but a very dry season depressed production in farming generally and this showed up in lighter slaughter weights. The following season was also rather dry, slowing the full recovery.

To counter the very severe balance of payments problems caused by the 1973 oil price rises and their aftermath of collapsed export prices, the mid-1970s saw renewed emphasis on expansion in the farming industry encouraged by government incentive schemes aimed at expanding livestock production for export. Because, initially, beef prices had still not recovered to a level which would make returns comparable to those from sheep meats and wool, most of the growth was directed into increasing sheep numbers with the results seen in total livestock numbers. The level of increased production achieved over the last two seasons also owed much to more favourable climatic conditions.

NEW ZEALAND MEAT PRODUCTION TRENDS

Total meat production is ultimately determined by livestock numbers and by slaughter weights. But while long-term meat production is positively linked to livestock numbers, in the short-term there is frequently an inverse relationship between the trend in livestock numbers and that of meat production.

Production of lamb is largely determined by the interaction of four important variables; the size of the national flock, trends in breeding ewe numbers, lambing percentage and climate. While the importance of the first of these has always been self-evident, the marked changes in the trend in sheep numbers which have occurred at various times in the past twenty years have brought much wider recognition of the effect which such changes can have on the level of meat production as farmers withhold from slaughter extra lambs for breeding purposes or conversely present for slaughter lambs which would otherwise have been required to maintain an earlier trend. Lambing percentage and climate are to some extent inter-connected since a period of drought will also adversely affect the lambing percentage in the following season. However, a drought also has the effect of reducing slaughter weights in the season in which it occurs and the lambing percentage can be affected by other factors such as breed composition, death rates, and the level of farm inputs such as fertilizer.

Lamb production grew fairly steadily between 1962/63 and 1971/72, rising from 285,700 tonnes to a record 378,900 tonnes. Production declined sharply in the following two seasons mainly because of severe drought conditions experienced in 1972/73 which affected both carcase weights and subsequent lambing percentages (see table 2). These remained relatively low up until 1979 by which time higher farm inputs of fertilizer and improved grasses gave a boost once more.

While production of mutton is affected by all of the factors which determine lamb production it also tends to react to fluctuations in demand for wool. In 1967/68 the collapse in wool prices caused farmers to stabilise their sheep numbers thus halting the steady expansion of the early 1960s. As a consequence, production of mutton rose to a record 216,000 tonnes in that year. Production jumped again in 1972/73 under the influence of a severe

TABLE 2
AVERAGE EXPORT CARCASE WEIGHTS (kg)

	Lamb	*Mutton*	*Beef*
1959/60	14.3	23.6	..
1960/61	14.3	23.6	..
1961/62	13.6	22.5	..
1962/63	13.8	23.3	..
1963/64	13.8	22.6	..
1964/65	13.7	22.4	..
1965/66	14.2	22.9	261.5
1966/67	13.7	22.0	..
1967/68	13.2	21.0	252.8
1968/69	13.5	20.4	239.4
1969/70	13.2	19.8	232.4
1970/71	13.2	20.3	232.7
1971/72	13.2	20.0	249.6
1972/73	12.7	18.3	235.4
1973/74	13.1	19.5	243.7
1974/75	12.9	19.5	249.2
1975/76	13.7	19.8	222.7
1976/77	13.4	19.9	222.8
1977/78	12.9	17.9	209.8
1978/79	13.3	19.5	216.9
1979/80	13.6	19.9	229.5

Source: N.Z. Meat Producers Board

TABLE 3
TOTAL MEAT PRODUCTION
(000 tonnes, bone in basis, estimated)

Year Ended September	*Lamb*	*Mutton*	*Beef*	*Veal*	*Pigmeat*	*Other (incl. offal)*	*Total*
1963	285.7	106.6	191.9	..	..	..	..
1964	308.7	179.1	263.0	..	46.7	..	865,8
1965	303.5	172.1	250.7	..	44.8	..	836.1
1966	317.0	152.4	269.7	..	40.5	..	843.2
1967	332.1	188.4	275.8	..	36.6	..	905.1
1968	350.2	216.0	219.5	..	38.0	..	1,001.8
1969	362.8	200.0	249.7	..	36.9	..	1,030.4
1970	362.6	200.0	366.7	..	39.3	..	1,051.4
1971	358.9	204.9	372.1	21.1	42.3	55.3	1,054.5
1972	378.9	195.8	389.6	20.3	40.6	57.1	1,082.4
1973	341.0	215.1	423.8	21.7	35.3	60.2	1,097.0
1974	304.6	192.9	377.9	36.8	34.4	53.4	990.0
1975	327.0	163.9	477.0	31.1	34.2	55.5	1,088.7
1976	357.6	155.2	599.0	29.1	32.8	60.6	1,234.3
1977	341.5	156.2	529.9	27.8	39.0	58.0	1,152.5
1978	342.0	159.6	533.7	27.8	38.2	58.8	1,160.3
1979	351.1	162.8	490.5	21.1	35.7	58.1	1,119.3
1980	391.2	168.5	478.8	16.9	34.5	61.0	1,150.9

Source: NZ Department of Statistics.

TABLE 4
NEW ZEALAND LIVESTOCK SLAUGHTER
(Meat Export Works and Abbatoirs)
(000's)

Year Ended September	*Cattle*	*Calves*	*Sheep*	*Lambs*	*Pigs*
1960	..	..	6,553	19,614	835
1961	..	..	6,526	19,715	810
1962	..	..	7,112	21,392	823
1963	..	..	6,341	21,184	895
1964	..	..	7,032	22,033	976
1965	1,114	1,227	6,730	21,814	925
1966	1,153	1,098	5,923	22,219	852
1967	1,197	1,215	7,697	24,049	770
1968	1,480	1,231	9,381	26,316	801
1969	1,679	1,354	8,826	26,750	770
1970	1,822	1,308	9,071	27,433	806
1971	1,814	1,073	9,270	27,118	901
1972	1,771	1,057	8,507	27,842	878
1973	2,031	1,060	10,328	26,684	752
1974	1,790	1,244	8,762	22,997	745
1975	2,137	1,441	7,094	25,429	720
1976	2,573	1,295	6,592	25,961	722
1977	2,287	1,283	6,900	25,417	826
1978	2,408	1,235	7,706	26,392	798
1979	2,133	1,074	7,410	26,051	723
1980	2,015	965	7,460	28,692	710

Source: NZ Department of Statistics.

TABLE 5
CONSUMPTION OF MEAT IN NEW ZEALAND
(000 tonnes, bone in basis, estimated)

Year Ended September	*Beef*	*Veal*	*Mutton*	*Lamb*	*Pigmeats*	*Other Incl. Offal*	*Total*
1960	98.2	..	87.4	15.3	36.0	..	254.7
1961	98.6	..	86.2	15.7	36.0	..	253.8
1962	109.8	..	87.9	20.1	37.0	..	274.5
1963	119.0	..	89.5	20.1	38.3	..	287.0
1964	114.5	9.6	89.9	21.1	41.9	10.8	288.1
1965	120.9	9.2	86.9	19.4	38.6	10.7	286.1
1966	122.8	8.5	77.6	22.3	37.9	11.5	280.9
1967	125.3	9.8	78.6	27.2	35.4	11.5	288.1
1968	123.1	10.4	82.4	26.8	37.9	12.3	293.3
1969	124.9	9.5	85.2	25.6	37.3	13.3	296.2
1970	122.8	9.1	86.9	26.7	38.6	14.4	298.9
1971	123.1	10.0	88.9	28.8	40.6	16.9	308.3
1972	126.3	9.4	95.4	33.5	42.4	16.7	323.7
1973	133.5	11.7	89.5	37.1	35.2	16.8	323.8
1974	133.3	11.4	84.2	32.2	33.0	14.3	308.4
1975	153.3	11.1	78.7	37.2	35.8	15.7	331.8
1976	163.3	11.2	66.5	37.6	35.1	17.3	331.0
1977	176.4	9.8	60.2	35.0	39.4	17.2	338.1
1978	178.8	9.3	63.3	33.6	40.5	17.3	342.8
1979	160.7	6.1	63.9	34.5	38.0	15.5	318.8
1980	147.1	3.6	64.9	33.5	36.2	15.8	301.2

Source: N.Z. Department of Statistics

drought and the need to cull older sheep held over for an extra year as a result of the livestock retention incentive scheme operated in 1972. Following 1973/74, production declined to around 160,000 tonnes as the national sheep flock returned to an expansionary phase again.

Under the impetus of rising prices, falling returns from sheep and uncertainty in the dairy industry, beef production expanded rapidly during the decade to 1972/73, growing by over 120 per cent to 423,800 tonnes. In 1973/74, following the collapse of the American beef market, production fell as farmers held back stock from slaughter in the hope that prices would improve. When this did not happen in the following season farmers began to lose confidence in the beef market and started a process of herd reduction. This caused beef production to rise to 599,000 tonnes in 1975/76 and to stay at very high levels through the next four years.

When the divergent trends in production of different meats are brought together overall meat production climbed steadily through the eight years from 1964/65 to 1972/73. The market disruption of the following two years saw overall production dip, recover and then, in 1975/76, jump to a record 1,234,300 tonnes before falling back to a level close to 1,150,000 tonnes at about which level it has remained in the seasons since. Details of meat production through the period 1962/63 to 1979/80 are given in table 3 while numbers of animals slaughtered for the period 1959/60 to 1979/80 are detailed in table 4.

PRODUCTION FOR EXPORT

Domestic consumption of meat has risen more slowly over the period of this review than has total meat production. It has increased by 18 percent, rising from 254,700 tonnes in 1959/60 to 301,200 tonnes in 1979/80 (see table 5). This has meant that a very large share of the total increase in meat production has gone into exports, details of which are shown in table 6.

Over the past decade there has been some increase in the proportion of meat being exported in boneless form or as cuts to meet market requirements. The traditional market for lamb in the United Kingdom has been somewhat slow to accept this change, being geared to handle the carcase trade but some markets, particularly in North America and Japan, are more readily accepting the product in a form which is both more profitable and convenient for distributors to handle than the traditional carcase exports. In contrast the new Middle East markets require most lamb in carcase form. The move towards producing meat for export in forms appropriate to the demands of particular markets has also been accompanied by the adoption of slaughtering techniques designed to meet the requirements of specific markets. This trend is likely to continue in the future as markets become increasingly diversified and more sophisticated.

The statistics of meat production for export in table 6 are compiled on a product weight basis and the increased proportion of meat exported as cuts or in boneless form in recent years conceals, in part, the growth in total production directed to export markets. However, on a bone-in basis estimated meat production available for export, ignoring the exceptional deviations of the 1973/74 and 1975/76 seasons, has shown a relatively steady growth throughout the past twenty years with production in the three latest seasons, at an average of 856,000 tonnes, 62 per cent higher than in the 1959/60 to 1961/62 seasons.

ADMINISTRATIVE STRUCTURE OF THE MEAT INDUSTRY

Overall supervision of the export meat processing industry in New Zealand is largely vested in three institutions. These are the New Zealand Meat Producers Board, the Meat Industry Authority[1] and the Ministry of Agriculture and Fisheries.

The New Zealand Meat Producers Board is a statutory producer organisation made up of representatives elected

1. At time of printing a Bill was before Parliament which, when it comes into effect, will abolish the Meat Industry Authority transferring its residual powers to the Ministry of Agriculture and Fisheries.

TABLE 6
MEAT PRODUCTION FOR EXPORT
(tonnes, product weight basis)

Season Ended September	*1970*	*1971*	*1972*	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*
Lamb, carcase	297,776	299,959	302,443	272,626	234,965	258,214	276,837	264,183	257,317	257,491	295,257
Lamb, cuts and boneless	29,679	26,260	39,040	32,436	35,043	41,328	50,596	48,736	56,295	59,846	63,351
Total Lamb	327,455	326,219	341,483	305,062	270,008	299,542	327,433	312,919	313,612	317,338	358,608
Ewe, carcase	100,543	98,554	90,911	107,617	104,023	77,251	79,814	85,251	83,237	86,135	91,903
Hogget and wether carcase	5,271	7,304	2,952	2,945	1,981	1,633	1,525	1,729	602	631	223
Mutton cuts	573	850	1,485	916	796	856	947	931	1,148	1,135	1,009
Boneless mutton	2,385	3,674	4,248	10,450	7,436	6,574	5,351	4,955	5,684	7,278	6,171
Total Mutton	108,772	110,381	99,597	121,928	114,235	86,316	87,637	92,866	90,671	95,179	99,306
Chilled beef	630	719	690	1,461	1,816	937	1,954	3,266	3,570	4,217	5,019
Ox and heifer carcase	10,585	10,021	7,305	4,378	1,789	6,282	13,381	10,618	990	293	528
Cow and bull carcase	1,079	806	877	746	606	900	2,149	1,550	492	391	545
Ox and heifer cuts	24,288	23,834	27,566	26,625	21,158	35,062	51,336	43,237	41,903	38,638	39,124
Cow cuts	3,602	4,582	3,669	3,752	5,552	6,904	8,490	7,067	6,066	5,400	6,286
Ox, heifer and cow manufacturing	107,253	105,362	101,693	124,889	99,804	122,284	163,380	134,709	145,571	133,022	128,555
Bull manufacturing	18,601	24,418	33,186	36,293	30,311	32,881	36,252	26,016	27,547	28,033	30,545
Veal	874	997	964	745	535	798	216	285	88	87	36
Bobby veal	8,594	6,366	6,878	7,057	9,480	10,909	10,646	9,536	10,384	8,131	7,746
Total Beef and Veal	175,505	177,105	182,828	205,949	171,049	216,956	287,806	236,281	236,411	218,212	218,384
Other meat	871	1,276	1,172	1,100	738	923	353	1,435	1,182	950	509
Edible offal	39,772	38,502	39,526	43,931	38,250	42,500	46,374	44,116	44,331	44,345	47,313
Inedible meat and offal	21,041	17,657	19,369	20,276	15,708	16,857	16,479	15,166	18,405	18,046	21,847
Total Meat Production for Export	673,416	671,139	683,975	698,251	609,988	663,096	766,082	702,783	704,613	694,071	745,965

Source: NZ Meat Producers' Board.

by sheep and cattle farmers, a representative of the dairy industry and two government appointees. The Board was formed in 1922 under the provisions of the Meat Export Control Act with the aim of protecting the interests of meat producers and the country as a whole. Its major functions include negotiation of freight rate contracts and shipping schedules for export meat to certain markets; administration of price stabilisation schemes; market research and market promotion of New Zealand meat; the control and supervision of the export grading system and improvement in quality of the meat produced; monitoring of storage facilities for export meat; the collection and publication of statistics relating to the production, grading, marketing and prices of export meat; and the administration of the Meat Industry Reserve Account. The Board's activities are financed by way of a levy on all meat slaughtered in licensed premises except for offal and canned meats.

Unlike the New Zealand Dairy Board, the New Zealand Meat Producers Board does not normally involve itself in direct marketing, although it has become more involved over recent years in the marketing of lamb and mutton. It has recently been quite heavily involved in negotiations for the sale of lamb to Iran and in the 1971/72 season undertook the marketing of a major part of the season's lamb production when prices were extremely low. The Meat Producers Board has intervened to purchase and market mutton on a number of occasions in recent years. Generally, though, the Board has confined itself to the regulation of shipments, quality control, promotion and market development. Until 1972 the Board's power to purchase and market export meat was limited by legislation.

On the other hand the Board has been indirectly involved in meat marketing since 1960 through the Meat Export Developing Company (DEVCO) which was formed by the Board together with meat exporters to be solely responsible for the marketing of New Zealand lamb in Canada and the United States. The establishment of Devco was largely in response to a United Kingdom request at that time for New Zealand to diversify the marketing of its lamb to other countries in order to alleviate the possibility of oversupply in that market.

The Meat Industry Authority is also a statutory organisation, set up under the provisions of the Meat Act 1964, with representation from the Meat Producers Board, the New Zealand Freezing Companies Association, industry employees and a government appointed chairman. The Meat Industry Authority has primary responsibility for ensuring an efficient and economic export meat processing industry. It is responsible for licensing export meat processing establishments and exporters. It is also charged with the responsibility of assessing the performance of existing licence holders, the adequacy of existing plants for slaughtering, processing, freezing, chilling or storage of meat; and the need or otherwise to issue additional licences.

In an amendment to the Meat Act in 1980 the powers of the Meat Industry Authority were somewhat reduced with the alteration of criteria to be applied in assessing the need for new export slaughterhouse licences and transfer of consideration of mergers and takeovers within the industry to the Commerce Commission making it now a licensing authority only.

The Minister of Agriculture and Fisheries plays a direct role in the administrative structure of the meat processing industry by providing an inspection service for examining the hygiene of processing establishments and for inspecting meat during the slaughter process to ensure that it meets internationally accepted standards. The Ministry has other advisory functions but these stem from its role as a government department, responsible for agriculture, rather than specific administrative responsibilities relating to the functioning of the meat processing industry.

MEAT PRICE STABILISATION

During the Second World War the New Zealand Government entered into bulk purchase arrangements for farm produce with the Government of the United Kingdom. At the same time it entered into an arrangement with New Zealand farmer organisations to pass on to producers only those price increases necessary to meet higher production costs. Any excess funds earned were to be paid into industry reserve accounts which would be used in future years for the benefit of the industry concerned.

In 1955, when the bulk purchasing arrangements had been terminated, the funds paid into the Meat Industry Reserve Account became the basis for a scheme whereby abnormal declines in the export prices of meat products could be modified through the operation of a minimum prices scheme. Under this scheme a Meat Export Prices Committee was established and charged with the responsibility for setting a table a minimum prices for basic grades of various classes of meat exported from New Zealand. If export prices fell below the minimum prices set by the Committee, farmers would become eligible for a deficiency payment from the accumulated reserves in the Meat Industry Reserve Account.

Factors taken into account when setting the minimum prices were: the average level of prices in the preceding three seasons; the current level of minimum prices; market trends and future prospects for the sale of meat; prices ruling for other farm produce and the general level of farm costs; and prices and wages in New Zealand.

A major defect in the scheme was the lack of any provision for rebuilding the Reserve Account balances in the event of substantial inroads being made into them in any season when very low prices might occur. This caused the Meat Export Prices Committee to adopt a rather conservative approach when setting minimum prices. For this reason the minimum prices scheme had little influence on the pattern of production or on modifying price movements in most years as the minimum prices were set well below expected schedule prices.

At the beginning of the 1971/72 season, in the face of strong indications that meat exporters would offer very low schedule prices, a change was made to the legislation governing the New Zealand Meat Producers Board which gave the Board the right to set an alternative schedule of prices and to purchase lamb at those prices. Other meats could be purchased only if a suitable Order in Council was passed. In the season which followed the Meat Producers Board purchased large quantities of lamb (which it subsequently sold at a substantial profit).

TABLE 7
MEAT INDUSTRY RESERVE ACCOUNT AND MEAT INDUSTRY STABILISATION ACCOUNT BALANCES
(NZ$ million)

As at 30th September	*Meat Industry Reserve A/C*	*Meat Income Stabilisation A/C*
1960	86.9	—
1961	89.6	—
1962	86.3	—
1963	88.1	—
1964	89.5	—
1965	90.9	—
1966	93.5	—
1967	95.3	—
1968	97.3	—
1969	98.2	—
1970	100.8	—
1971	102.7	—
1972	87.3	—
1973	88.6	—
1974	93.6	—
1975	77.8	− 3.2
1976	90.9	−14.4
1977	95.9	− 7.7
1978	98.0	− 8.1
1979	102.2	+32.3
1980	105.3	+22.9

This action highlighted the inadequacy of available reserves for mounting major support exercises. During the season prices recovered, however, and the following season saw very high prices for all export meats. But in 1973/74 prices for beef, mutton and lamb all fell sharply and in the 1974/75 season the Meat Producers Board at one point was supporting all three types of meat. The low prices prompted a review of the scheme and its replacement with a more comprehensive scheme.

The main aims of the new scheme were to establish floor prices at a more realistic level and to provide a mechanism which would enable the Meat Industry reserves to be replenished when prices were relatively high. Under this scheme minimum and 'trigger' prices for certain benchmark grades of meat are set each season. Whenever the schedule price exceeds the trigger price a percentage of the producer's return is deducted according to a predetermined formula. Whenever the schedule price falls below the minimum price the shortfall is made up. An account was set up with separate sub-accounts for sheepmeat and beef stabilisation. Into this account the levies are paid and from it, when required, payments are made. One of the objectives of the scheme is to set the minimum and trigger prices at a level which makes the buffer accounts self-balancing over time.

Because of continued erosion of farm profitability, in June 1978 the Government introduced a further price scheme, known as the Supplementary Minimum Price Scheme, which operates alongside but independently of the Meat Producers Board scheme. Before the beginning of each season supplementary minimum prices are set and guaranteed by the Government (which funds the scheme) for the following season as well. The major purpose of the scheme is to provide farmers with sufficient confidence in future returns to maintain investment levels for the season ahead. In this way the Government aims to counteract the adverse effects on investment arising from farmers' uncertainty in the face of volatile export prices. Details of Meat Income Stabilisation Account balances and Meat Industry

Reserve Account balances are shown in table 7 while minimum, trigger and supplementary minimum prices are shown in table 8.

TABLE 8
MINIMUM AND TRIGGER PRICES
(cents/kg)

Year Ended September	Government Supplementary Minimum Price	Meat Board Minimum Price	Meat Board Trigger Price
Lamb PM			
(13–16 kg)			
1976	—	49.5	—
1977	—	55	72
1978	—	59	78
1979	70	72	95
1980	86	86	120
1981	110	113[1]	155[1]
1982	145		
Mutton ML1			
(22 kg and under)			
1976	—	22	—
1977	—	21	30
1978	—	30	40
1979	30	30.5	42
1980	40	35	50
1981	43	40	60
1982	50		
Beef Cow M			
(140 kg and over)			
1976	—	40	—
1977	—	40	60
1978	—	41	63
1979	70	58	80
1980	100	100	140
1981	105	103	150
1982	125		
Beef Steer P1			
(245–270 kg)			
1976	—	55	—
1977	—	55	80
1978	—	57	83
1979	80	70	96
1980	110	112	158
1981	120	120	170
1982	143		
Bull Beef			
1980	—	110	160
1981	120	120	175
1982	143		

Source: Ministry of Agriculture and Fisheries.
(1) These prices applied only from 13 October 1980, lower prices of 94 and 135 cents having been announced previously.

MEAT MARKETING

The most common method adopted by producers for selling their meat for export is to sell their livestock to a meat processing company at a price based on the weekly schedule of prices announced by meat exporting companies. The prices offered are determined by market conditions and expectations, and are calculated by subtracting costs and margins for killing, processing, freight and other handling costs, etc. from expected receipts at point of sale overseas. By offering stock for sale in this way producers receive an assured immediate return based on the prices being offered at the time of slaughter irrespective of the actual returns from those animals. The meat processing company may perform the dual roles of processor and exporter or may act merely as processor for some other exporters.

An alternative method is for the producer to act as exporter, arranging for the sale of his meat overseas on his own account, having his stock slaughtered and taken to export markets for sale on a commission basis. This is generally achieved by pooling the lambs of a number of producers with the pooling arrangement operated as a service of the processing company. Producers receive an advance payment of 90 per cent of the current schedule and receive any balance between schedule and actual market price after pool realisations have been finalised.

A second alternative is for the meat to be sold through a producers' co-operative marketing organisation, in which case an advance payment of the bulk of the schedule price is made shortly after slaughter with any extra return being paid after the meat has been sold, as in the pool arrangement.

A third alternative is for the producer to sell his livestock live on the farm to an export buyer or at auction in organised livestock markets. This method is much less commonly used than the other methods outlined above.

INTERNATIONAL TRADE

Only a relatively small proportion (approximately 8 per cent) of world meat production is traded internationally, the remainder being consumed within its country of origin. The major exporting countries are Australia, the Netherlands, New Zealand, Argentina, Denmark and Ireland, while the major importing countries are the United States, Canada, Japan and the Common Market countries, particularly the United Kingdom. New Zealand is the third largest exporter of meat in the world and, as previously indicated, the largest exporter of sheepmeats, accounting for approximately 50 percent of world trade in that commodity. Exports of New Zealand meat go to over seventy different countries, but most of these take only a small proportion of the total. Large scale purchases are made by only five or six countries, notably the United Kingdom and Iran in the case of lamb, the USSR and Japan in the case of mutton and the USA and Canada in the case of beef. Details are given in table 9.

Most of these countries apply some form of restrictions to imports of meat in order to protect their own domestic livestock sectors. Because of this New Zealand's export meat trade is vulnerable to political disruptions and reviews of trade policy by importing countries in addition to normal fluctuations of market demand and prices.

Lamb

The United Kingdom is by far the largest market for New Zealand lamb although its importance has declined in recent years as diversification policy has taken effect. As recently as 1966/67 that market took 92 percent of the country's total lamb exports but by 1974/75 this had declined to 75 percent and in 1979/80 to only 52 percent of lamb exports. Until 1971 access to the United Kingdom market was unrestricted, but in 1971 levies on meat imports were introduced with the stated objective of raising domestic lamb prices and thereby reducing the amount of deficiency payments which the United Kingdom government needed to make to their farmers. The United Kingdom market has been an increasingly competitive market for New Zealand lamb with prices

TABLE 9
NEW ZEALAND MEAT EXPORTS BY DESTINATION
(000 tonnes)

Year Ended June	*1967*	*1968*	*1969*	*1970*	*1971*	*1972*	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*
						Lamb								
United Kingdom	273.4	277.2	296.5	275.4	287.4	281.7	252.7	198.7	208.5	214.8	201.8	185.3	199.7	173.0
Iran	—	—	—	—	—	—	—	—	6.6	12.3	18.1	43.2	7.4	42.9
Greece	2.5	4.2	7.1	9.0	10.5	21.4	24.8	5.3	8.1	14.7	3.4	13.9	14.3	6.9
Iraq	—	—	—	—	—	—	—	1.5	6.8	11.4	12.2	0.7	11.0	8.7
USA	3.3	6.3	8.6	11.6	8.4	7.4	10.5	7.8	5.3	13.4	9.9	11.8	14.5	13.1
Japan	0.9	2.0	3.6	5.7	3.8	5.0	9.1	4.7	6.2	10.4	12.9	12.6	21.3	11.2
Canada	5.6	6.4	8.3	1.6	2.3	3.7	5.4	4.0	5.0	8.3	8.8	8.0	9.6	8.9
Germany	0.6	1.4	0.7	1.8	3.1	3.7	6.9	3.1	5.2	4.7	3.6	7.3	7.7	6.4
Other	10.3	11.3	13.4	14.5	14.4	19.3	25.6	25.9	24.6	36.8	26.4	29.5	35.1	47.3
Total	296.6	308.8	338.3	319.6	329.9	342.2	335.0	251.0	276.3	317.4	297.1	312.3	320.6	318.4
						Mutton								
USSR	—	—	—	7.3	9.3	5.2	—	—	44.1	10.4	58.9	16.6	47.5	61.2
Japan	47.2	73.1	91.9	83.4	51.5	65.7	76.6	54.5	34.5	39.3	21.6	23.2	45.2	10.2
United Kingdom	18.5	25.8	32.4	—	—	0.1	5.7	6.7	5.6	10.5	8.8	5.9	11.1	3.7
South Korea	—	—	—	—	0.6	4.3	6.3	11.5	11.3	11.0	10.8	13.1	28.5	5.1
France	0.1	0.1	0.1	0.2	0.2	0.3	0.2	—	0.3	0.3	0.2	0.2	1.2	0.1
Jamaica	0.5	0.8	1.0	1.8	2.1	3.2	2.0	1.3	2.6	1.3	1.4	1.1	0.9	0.4
Papua New Guinea	—	—	0.2	0.4	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.3	0.3	0.5
Other	5.3	4.5	8.7	26.9	31.8	25.7	15.7	23.1	10.2	6.7	3.2	2.2	5.2	6.3
Total	71.6	104.3	134.3	120.0	95.7	104.7	106.8	97.9	109.0	80.0	105.4	62.6	139.9	87.5
						Beef and Veal								
USA	71.3	96.6	97.3	89.3	108.6	114.9	137.9	129.1	139.4	127.8	111.4	136.3	179.0	157.9
Canada	2.0	2.6	7.4	46.8	27.8	28.3	18.6	24.0	22.3	38.8	25.7	27.2	30.0	22.4
USSR	—	—	—	3.8	3.2	4.6	—	—	—	9.7	46.5	18.6	—	3.8
Greece	0.3	0.2	—	—	—	—	0.2	0.2	1.1	3.6	4.5	—	—	—
United Kingdom	16.2	10.5	10.6	14.2	17.1	11.6	16.7	8.8	5.8	6.7	11.9	5.0	3.9	6.0
Japan	2.8	3.4	1.9	3.4	3.3	4.1	7.2	6.0	3.1	5.2	5.2	7.8	5.7	3.6
Other	13.6	16.0	16.0	20.2	20.9	21.8	23.0	15.3	20.7	36.3	55.4	30.9	26.0	21.9
Total	106.2	129.3	133.2	177.7	180.9	185.3	203.6	183.3	192.4	228.1	260.6	225.8	244.6	215.6

Source: Department of Statistics.

earned within seasons being most obviously affected by supplies and prices of competing meats, mostly domestically produced lamb, and by trends favouring other meats, particularly pork and poultry. Consumption patterns favouring fast foods have also contributed.

In 1972 the United Kingdom joined the European Economic Community (EEC) and began to put in place the EEC common customs tariff of 20 percent but without any limitation on the amount of lamb which could be imported. However, in subsequent years there developed considerable friction between EEC members on the terms and conditions which should apply to intra-community trade in sheepmeats with the result that protracted negotiations took place on the form which a common sheepmeats regime should take. Agreement was finally reached in 1980.

The regulation as introduced provides for the freeing up of the sheepmeats trade between member states; the only restriction being a variable levy applied to United Kingdom exports.

In order to satisfy the requirements of the United Kingdom and France, the regulation allows member states to opt for one of two alternatives for supporting producers' prices, an intervention system or a variable premium system. All member states with the exception of the United Kingdom will operate under the intervention system.

Both systems are tied to a 'Basic Price' and 'Reference Prices', which are determined annually and vary seasonally on a weekly basis. For member states who do not have a surplus of sheepmeats the intervention system permits private storage aids to be made available when market prices fall below 90 percent of the 'basic price'. Lower intervention prices apply in member states with a surplus of sheepmeat. Before the regime could be introduced 'voluntary' restraint agreements had to be negotiated with third countries such as New Zealand. In New Zealand's case exports to the EEC of sheep and goat meat are restricted to 245,500 tonnes per annum. In addition, New Zealand has agreed to limit the export of sheepmeat to France to traditional levels until March 1984 when the whole voluntary restraint agreement is due to be renegotiated. In return for the imposition of quotas the tariff on imports of New Zealand lamb was reduced from 20 percent to 10 percent.

The regime has distinct disadvantages for New Zealand, particularly in the longer run. The improvement in returns to United Kingdom farmers offered by the scheme is likely to cause an increase in domestic production which in turn is likely to exacerbate an over-supply problem created by a reduction in United Kingdom exports to other EEC countries caused by the imposition of an export levy. Another possible drawback is that the seasonal price incentives and private storage aids may encourage a more even domestic supply throughout the year to the detriment of New Zealand lamb demand. There is a real danger that the regime may become more restrictive when it is renegotiated in the future in the same way that the special arrangement for import of New Zealand butter has become more restrictive at each renegotiation.

Initially, attempts to diversify New Zealand's lamb trade were concentrated on the United States and Canada with Devco being set up specifically to market lamb in these countries. The Lamb Market Development Committee, consisting of representatives of the Meat Producers Board and the meat export trade sets a target precentage of lamb to be sold in countries other than the United Kingdom each year and also imposes a levy on any shortfall in sales below the target. In 1979/80 the target was initially set at 32 percent but it became obvious during the season that this target would be substantially exceeded. As a consequence of this high level of diversification and the implications of the voluntary restraint agreement with the EEC the Committee suspended the scheme in the interim. The North American market was chosen as an initial target market because it offered unrestricted access, low duties plus a large relatively affluent population with some lamb eating history. Of the two countries, Canada has presented the more ready market as Canadians are accustomed to eating frozen food and are knowledgeable about New Zealand. The United States is a more difficult market, however, as lamb consumption has been declining steadily, falling from 3 kg per head in 1945 to less than 1 kg per head by 1976. Fresh lamb is no longer readily available in over half of the states and there is therefore a danger that Americans will eventually lose their familiarity with and taste for lamb. Consequently, Devco has undertaken a heavy promotional and advertising programme in order to keep lamb in the public eye.

Aside from these problems a major impediment to expansion of New Zealand lamb exports to North America is the method by which the New Zealand schedule price is set since the United Kingdom is still the major market for New Zealand lamb. This schedule price is determined almost entirely by prices ruling in that market and many contracts for the supply of lamb to Middle East markets are based on United Kingdom prices. The type of lamb which commands the best prices in the North American markets (a larger, lean carcase) is not in such demand in the United Kingdom but Devco on occasions has difficulty in obtaining adequate supplies of the type of lamb it wants for the North American markets because exporters and processors are unable to meet the specifications set by Devco or unwilling to supply at that particular time. Although sales to the United States and Canada have increased in recent years, at 7-8 percent of the total in 1979/80, they represent a relatively small proportion of lamb exports.

The largest market outside the United Kingdom for New Zealand lamb is Iran and the greatest future potential appears to lie in that and other Middle Eastern markets. In October 1979 a contract was signed with Iran for a minimum of 200,000 tonnes of New Zealand lamb to be sent over a period of four years. This represented the largest single sale of New Zealand meat made since the bulk purchase agreements of World War II and signalled a major breakthrough in attempts to penetrate the Middle Eastern market. Iran was first considered as a possible market for New Zealand lamb in the early 1970's when it became apparent that its livestock resources were insufficient to meet the needs of its growing population. However, there were a number of obstacles initially, including a lack of cold storage facilities in Iran and the requirement to supply live sheep as well as frozen meat. Both these problems have now been overcome and provided political disruptions do not intervene prospects for increased sales to it and other Middle Eastern countries appear bright. The population in the region is expanding rapidly and becoming increasingly affluent while there is little potential for increased domestic production since there is only limited arable and good pasture land available.

Mutton

The major importer of New Zealand mutton over the past twenty years has been Japan, although in recent seasons it has been replaced by the U.S.S.R. Most of the mutton exported to Japan is used as an ingredient for sausages or sold as mutton hams and so is open to competition from other meats such as pork when these are available more cheaply. This has created significant fluctuations in the level of demand from year to year. In recent years some of the mutton, which is eventually destined for Japan, has gone first to Korea where Japanese ham companies operate boring plants in order to take advantage of lower labour costs in that country. After processing the meat is re-exported to Japan.

Until recently the U.S.S.R. tended to purchase mutton from New Zealand only intermittently with imports in individual years varying between nil and 60,000 tonnes. When New Zealand export prices are relatively low or domestic meat supplies short, Russian purchases tended to increase, but in recent years their demand has grown and become more regular. Over the years the U.S.S.R. has been hampered in its attempts to increase livestock numbers by drought conditions and grain embargoes while at the same time the standard of living of its people has been rising and the demand for meat has been strong. It has therefore been necessary to import substantial quantities of meat from New Zealand and other countries. However, there must be some doubts as to whether imports will continue at the same high level in the future. Limited availability of western currency reserves to finance trade with countries appears to be a constraint at times and one that is likely to continue in the future.

Beef

The U.S.A. is the dominant force in the world market for beef as it is both the largest producer and the largest importer in the world. The immense size of the United States industry can be gauged by comparing the size of the United States cattle herd with that of New Zealand or Australia. In January 1979 the United States cattle herd totalled 110.9 million while New Zealand's herd stood at 8.5 million and Australia's at 27.1 million. In the same year United States production of beef was 9.8 million tonnes compared with New Zealand production of 0.5 million tonnes and Australian production of 1.6 million tonnes. Almost all of this production is consumed within the United States. In addition, the U.S.A. imports meat amounting to roughly one third of all beef traded internationally. In 1979, 0.7 million tonnes of beef were imported into the U.S.A. with Australia being the largest supplier and New Zealand, Canada and the Central American countries being the other major suppliers. Thus, although New Zealand beef exports make up only a small proportion of total United States consumption, they account for a very large percentage of New Zealand production since about 70 percent of New Zealand beef is exported and about 70 percent of these exports go to the U.S.A.

The United State beef industry is based mainly on grain fed cattle which produce prime beef carcases. Generally, these carcases have more external fat than is considered desirable by consumers so this fat is trimmed from the carcase and mixed with lean beef of the type supplied by New Zealand and other exporting countries to make 'hamburger' or other processed meat products. The other major source of manufacturing grade beef in the United States is the culling of older breeding stock which have been grass fed. Approximately 40 percent of all United States beef is consumed as processed meats and almost 60 per cent of that as ground beef.

A major influence on the United States beef market and hence the market for New Zealand's beef exports is the biologically generated cattle cycle in the former country. During a cycle (generally lasting 9-12 years) domestic production of beef fluctuates in response to trends in live cattle numbers. As these expand beef production is depressed because of the higher than normal retention for breeding purposes. This causes beef prices to rise, encouraging the cattle herd expansion to continue until eventually supply exceeds demand, prices fall and slaughter rates increase as producers seek to reduce their herds. This further depresses prices and thus accelerates the move to liquidate herds until prices begin to rise again as supplies eventually dwindle.

Because exporting countries like New Zealand are supplying only a small proportion of the total United States beef requirement these changes in domestic supply and prices are accentuated in the prices for imported beef. The effect has been exaggerated even more by the United States policy of requiring export countries to apply 'voluntary' restrictions to their exports of beef to the United States when domestic supplies were high.

In all of this the variation in the supply and prices of manufacturing grade beef and therefore imported beef is much greater than for prime beef as manufacturing grade beef is basically a by-product of the breeding sector which supplies the raw material (feeder cattle) for prime beef production. During the last cattle cycle in the United States cattle numbers in that country rose from 109 million in 1967 to 132 million in 1975 before declining again to 111 million in 1979. Prices for imported manufacturing grade beef, in United States dollar terms, rose to a level, late in 1973, 130 percent above the level of January 1969 and subsequently fell again, early in 1975, to a level only 2 percent above that of 6 years earlier.

New Zealand's second largest market for beef is Canada, which has taken between 10 and 17 percent of New Zealand's beef exports over the last ten years. Because of its close proximity and links with the United States market the Canadian beef market has always been affected by developments in that market. Since 1976 Canada has also operated a quota system to regulate the flow of imported beef and at time of writing was in the process of introducing counter-cyclical meat import legislation similar to that in force in the United States.

Other countries which have imported significant quantities of beef on occasions have included the USSR, the United Kingdom and Japan, but the amounts have been small when compared with the United States, and highly irregular in the case of the USSR.

By-Products

A wide range of by-products from the meat industry are also exported from New Zealand, making a substantial contribution to export receipts. In the 1979/80 year export earnings from meat industry by-products, not including edible by-products such as variety meats, totalled $374.8 million and accounted for 22 percent of total meat industry receipts. Variety meats such as tongues, brains, sweetbreads, hearts etc. make up the bulk of the 'other' meat category of the overseas exchange transactions along with pork, goatmeat, vension etc. and contributed a further 4 percent of meat recipes.

The largest market for variety meats is the United Kingdom, which took 58 percent of shipments in the 1979/80 season, a reflection of their taste for these meat products. Other major markets include Egypt, France, Iran and Japan.

Sheep and lamb skins are usually fellmongered to obtain slipe wool and pelts for the leather trade but some are processed in the woolly state and exported or sold locally as woolly sheep or lambskins. Most of the skins from which the wool has been removed (and also cattle hides) are exported in a preserved or, increasingly, a semi-processed form, allowing overseas tanners to finish the skins to their own specifications and enabling the tariffs imposed by importing countries on fully processed skins to be avoided. However, New Zealand export incentives on processed skins help to offset the tariff barriers and this has encouraged some expansion of the processing of skins and hides. This has not been without is problems as the international market for hides, skins and leather is extremely volatile. There is unlikely to be large scale development in the export of finished leather goods from New Zealand even with export incentives because of high production and shipping costs not to mention the lack of an internationally recognised, large scale fashion industry. The major markets for lamb and sheep pelts are the U.S.A., France, Italy, Spain, the United Kingdom, Belgium and the Netherlands while woolly sheepskins are mostly exported to the United Kingdom and Japan. The most important markets for cattle hides are Japan and Italy.

Widespread uses have been found for the by-products of the meat industry and almost every part of the animal is utilised in some way. Inedible organs are used in the manufacture of animal pet foods. Blood, meat and bone meals are utilised in animal feeds and fertilizers while various products are used to make pharmaceuticals and other medical products.

Major by-products are tallow, utilised mainly in soap manufacturing, and sausage casings, derived mainly from sheep and lamb intestines. Major markets for tallow are the Peoples Republic of China and Korea while for casings they are the United Kingdom, the United States, Germany and Canada.

EXPORT RECEIPTS

Export receipts for meat and meat by-products for the 20 years to 1980 are shown in table 10. Since these figures are on an overseas exchange transactions (OET) basis they refer to foreign currency receipts received through the banking system in the period stated and not directly to exports made in that period. Changes in the time lag between shipment and payment can alter the pattern of receipts so this should be taken into account when comparing official trade statistics with OET receipts.

Receipts from meat and meat industry by-products make up about one third of total exports, although in some years over 40 percent of receipts have been derived from the output of the meat industry. Of the three major agricultural export sectors in 1960 only meat has managed to maintain its relative importance as an export earner.

TABLE 10
NEW ZEALAND OVERSEAS EXCHANGE TRANSACTIONS
EXPORT RECEIPTS: MEAT INDUSTRY
(NZ $ million)

Year Ended June	*1960*	*1961*	*1962*	*1963*	*1964*	*1965*	*1966*	*1967*	*1968*	*1969*	*1970*	*1971*	*1972*	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*
Meat:																					
United Kingdom	93.1	108.9	95.4	101.2	113.8	138.4	137.2	116.1	128.8	151.0	190.3	177.6	183.4	225.5	181.8	176.0	222.5	259.6	282.3	360.8	369.1
United States	43.6	40.3	43.9	62.6	55.8	40.5	40.4	54.3	80.0	101.6	109.3	133.5	141.4	185.9	180.7	138.4	182.1	209.6	234.3	360.7	402.3
Canada	3.7	2.8	2.7	4.6	2.5	1.5	1.7	2.8	3.0	8.2	37.3	26.0	26.5	29.3	32.4	30.2	56.2	53.3	67.6	83.4	82.5
Japan	. .	. .	5.1	6.8	9.1	7.3	0.2	13.1	23.0	26.4	31.6	24.0	31.1	60.0	55.7	30.6	50.8	54.2	64.3	107.8	62.8
Australia	0.3	0.4	0.4	0.9	1.7	0.8	17.0	0.1	0.5	0.8	0.6	1.0	0.9	0.9	1.6	0.6	0.6	2.1	4.4	2.5	5.6
EEC (excl. UK)	2.3	1.9	1.1	2.0	3.7	9.9	6.7	6.2	6.7	6.6	10.2	12.4	17.0	26.5	25.0	20.7	36.3	40.7	40.8	59.2	51.7
Other	. .	. .	9.0	8.0	11.8	14.6	14.2	15.4	19.1	21.2	34.6	40.3	47.4	57.6	88.2	88.3	126.0	254.6	203.1	222.0	352.0
Total:	149.4	165.2	157.6	186.1	198.4	213.0	217.4	208.0	261.1	315.8	413.9	414.8	447.7	585.7	565.4	484.8	674.5	874.1	896.8	1196.4	1326.0
Meat Industry By Products:																					
Hides & Skins	9.4	6.7	7.4	9.0	7.9	8.3	9.9	10.1	9.0	13.0	15.8	14.9	16.5	34.6	27.7	25.4	42.0	59.5	77.2	110.8	113.3
Skeepskins & Pelts	19.8	17.7	17.9	17.0	23.3	24.5	29.9	26.5	30.8	36.2	36.8	37.6	46.9	59.9	45.6	42.5	52.0	87.0	109.6	130.7	150.0
Sausage Casings	7.8	7.6	8.4	10.7	12.1	13.2	12.6	12.2	11.2	14.0	16.3	18.7	16.8	15.7	16.0	18.0	22.5	24.3	23.4	33.3	30.2
Tallow	7.1	7.8	6.3	6.3	8.3	8.5	7.9	8.7	7.1	8.0	10.0	13.0	11.3	12.4	16.7	20.5	33.2	39.9	42.3	42.9	47.4
Inedible By Products	1.7	2.5	2.8	2.7	3.8	3.3	3.5	4.8	5.8	7.4	9.0	7.9	7.6	6.7	7.9	12.5	18.7	26.5	25.5	32.4	34.0
Total By Products	45.8	42.3	42.8	45.7	55.4	57.7	63.8	62.3	63.9	78.6	87.9	92.1	99.1	129.3	113.9	118.9	168.4	237.2	278.0	350.1	374.8
Total Meat Industry	195.2	207.5	200.4	231.8	253.8	270.7	281.2	270.3	325.0	394.4	501.8	506.9	546.8	715.0	679.3	603.7	842.9	1111.3	1174.8	1546.6	1700.8
Total Meat Industry Receipts as a percentage of total export receipts	(30.4)	(35.3)	(34.1)	(34.5)	(32.8)	(36.4)	(35.0)	(34.0)	(39.0)	(39.4)	(43.1)	(42.5)	(39.4)	(40.3)	(38.9)	(36.4)	(33.8)	(33.4)	(34.4)	(37.7)	(33.1)

In the early 1960's wool earned one third of New Zealand's total export receipts but by 1979/80 this had dropped to about 18 percent. Similarly although less spectacularly, dairy products declined from about one quarter of total export receipts to about 15 percent in 1979/80. On the other hand, meat exports earned around 34 percent of total export receipts until 1967/68 when, with the decline in wool and strong growth in meat receipts, it rose to 39 percent. In the following four years it remained at or above this level before declining to around one third of total export receipts again in the mid-1970's as manufactured exports expanded rapidly. Thereafter, they fluctuated around that level.

The United Kingdom, once by far the largest market for New Zealand meat, has now declined in importance. In 1959/60 this market accounted for 65.7 percent of meat receipts, while by 1979/80 this percentage had fallen to 27.8 percent. The U.S.A. supplanted the United Kingdom as the major buyer of New Zealand meat for the first time in 1979/80, although receipts from that country as a percentage of total receipts have remained relatively constant at around 30 percent. Other major markets for New Zealand meat are Canada, Japan and in recent years Middle East countries and the U.S.S.R.

Receipts for meat industry by-products have generally comprised about 20 percent of total meat industry receipts. Sheepskins and pelts plus (since the early 1970's) hides and skins account for the bulk of by-product receipts, with tallow, inedible by-products and sausage casings making up the bulk of the remainder.

CONCLUSION

The export meat industry, New Zealand's largest export activity, has played a key role in the country's development over the past century. Despite the difficulties involved in supplying agricultural products to distant world markets characterised by protective government policies, the industry has retained its level of overall importance in New Zealand's external trade. During the past two decades the importance of both the dairy industry and wool industry has declined as firstly forest exports then, more recently, manufactured exports, fish and horticultural exports have assumed growing importance. Yet the adjustments required of the meat industry have been substantially the same as the other primary industries. These have been adjustments to highly volatile price and demand situations, reacting to the restrictive policies of importing countries and undertaking a major diversification of markets.

A considerable amount of effort has gone into the development of new markets and this has been relatively successful as evidenced by the fact that the United States and United Kingdom, which together accounted for 92 percent of meat export earnings in 1959/60, accounted for only 58 percent in 1979/80. The trend towards diversification is likely to continue in the future, with oil exporting and some of the richer developing countries providing increased opportunities as markets for New Zealand meat. The outlook is particularly encouraging for sheepmeats since many of these countries show a marked preference for sheepmeat but have little prospect of increasing their own output to a level sufficient to meet the projected growth in their domestic demand. However, it seems likely that exports to more developed countries will tend to decrease as agricultural protectionism becomes more extensive. As New Zealand's markets change so will the product being sold. Stock are being bred to produce the type of meat required in the 'new' markets rather than that required in the United States or United Kingdom and there is an increased emphasis on lean animals as consumers in some markets become more health conscious.

As an industry based on agricultural production the meat industry inevitably faces uncertainties arising from climatic factors and disease. It has also had to overcome problems associated with a rapidly rising cost structure in recent years and profitability suffered sufficiently in the late 1960's and early 1970's to cause a lowering in productivity growth levels for some years.

The dominant influences on the industry have to a large extent been external ones; the disruptions to markets caused by inflation, recession, and government policies all undermining the stability of the industry. In the face of these problems both the industry and the New Zealand Government have taken steps to moderate the fluctuations and build confidence into the industry through price stabilisation measures and production incentives. The appearance of a stronger growth trend in recent years points to their success.

The future outlook can be faced with more confidence in the light of the success which has been achieved in finding new major markets for products such as lamb where traditional markets are being reduced by competition or restriction. As living standards continue to rise in countries such as Japan or in the Middle East the opportunities for additional exports of meat must be enhanced. In recent years the New Zealand meat industry has increasingly demonstrated an ability to respond flexibly to the challenge of such opportunities and this should ensure that the meat industry continues to be of major importance in New Zealand's export activity in the future as it has been in the past.