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LIVESTOCK AND MEAT MARKETING IN WEST AFRICA

VOLUME IV

Suppliers

Argentina, Australia, New Zealand

Edgar J. Ariza-Niño
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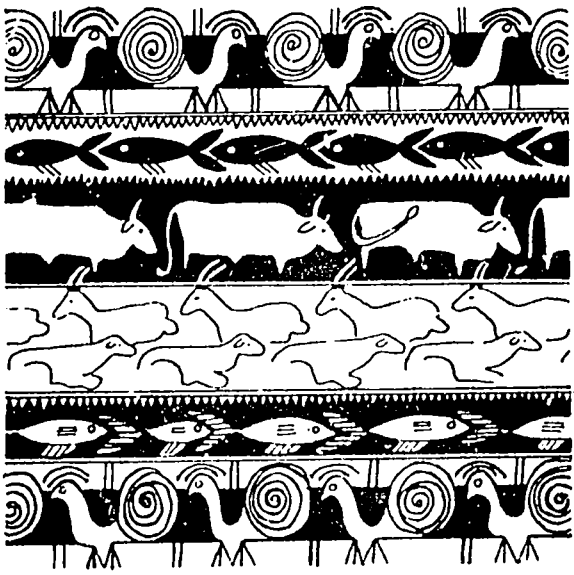

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LIVESTOCK AND MEAT MARKETING IN WEST AFRICA

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PREFACE

This is the fourth volume of a study of livestock and meat marketing in Central West Africa conducted by the Center for Research on Economic Development of the University of Michigan under contract to the REDSO/WA office of the Agency for International Development.

The subject of the study has been the marketing of red meat and livestock in five West African coastal countries -- Liberia, Ivory Coast, Ghana, Togo and Benin -- and two Sahelian countries -- Mali and Upper Volta. Together they constitute a Central West African "corridor" along which there has long been an active trade of live animals from the states in the interior to the centers of consumption near the coast.

Prolonged drought in the Sahel in the early 1970s disrupted the customary trade pattern. By 1975 coastal consumers had turned to non-African suppliers to an unexpected degree, and the countries on the Gulf of Guinea became part of the world meat market. The desirability of studying the implications of this development for livestock development policies in the Sahel provides the main rationale for the study.

Volume IV contains reports on three non-African countries that play an important role in the world meat trade: Argentina, Australia and New Zealand. The first-named, positioned close to the new markets on the African coast, began to export significant quantities of meat to them in 1975. Australia and New Zealand, on the other hand, did not.

The reports on the latter two countries were prepared by the Agricultural Business Research Institute of the University of New England, Armidale, N.S.W., Australia, under sub-contract to the University of Michigan. Mr. J.L.P. Griffith, Associate Director of the Institute, is the author. We are indebted to him and to Mr. P.A. Rickards, Director of the Institute, for the excellent quality of their collaboration on this project.

The other volumes in this study contain individual reports on the five coastal meat deficit countries, their two principal Sahelian suppliers, three other non-African suppliers, developments in the world meat market during the last decade, market potential for Sahelian livestock products

in North Africa, and a synthesis of the whole study. French translations are forthcoming.

We wish to express our appreciation for the fine work of Center staff in the preparation of this as well as of other volumes in the study. Beth Fredrickson coordinated the project's far-flung and numerous activities, then took responsibility with Tim Case for the immense job of editing the final reports. The professional competence and forebearance of Jayne Owen, Lori Roy and Jeane Walkowski through multiple revisions of several manuscripts deserve special praise. The art work that enlivens these pages is from the gifted pen of Jane McCormick.

Ann Arbor, Michigan
December, 1979

Edgar J. Ariza-Niño
Charles Steedman

LIVESTOCK AND MEAT MARKETING
IN WEST AFRICA
VOLUME IV

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ARGENTINE MEAT EXPORTS TO THE CENTRAL WEST AFRICAN COASTAL COUNTRIES

Edgar J. Ariza-Niño

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CHAPTER ONE

ARGENTINE BEEF EXPORTS TO AFRICA

I. - Share of Africa in Beef Exports from Argentina

Africa has become a major market for Argentine beef in the course of only a few years. In 1977, exports of refrigerated beef to African countries amounted to 46,538 metric tons, equivalent to 16.7 percent of Argentina's total. This figure becomes all the more remarkable if one considers that in 1974 only ten metric tons were shipped to Africa, and before that time hardly any exports of beef had been made to countries on that continent. The trend is also clearly toward an even greater share of the market going to Africa: recorded exports during the first two quarters of 1978 for all of Africa amounted to 36,658 metric tons, compared to 46,538 for the entire year in 1977. This rapid increase raised Africa's share of Argentina's beef exports to 24.7 percent in the first six months of 1978. By comparison, Argentina exported 82,639 metric tons in 1977 to the European Economic Community (EEC), or 30 percent of total beef exports. Other Western European countries received 84,710 metric tons, or another 30 percent, in the same year. Among the latter group, Spain alone accounted for 29,852 metric tons or 11 percent of Argentina's total exports (see Tables and Figures 1.1 and 1.2). Recently, Western European countries not belonging to the EEC have also become major customers of Argentine beef. Eastern European countries accounted for 12 percent of 1977 beef exports. Israel, Chile, Peru and Brazil are also significant purchasers. Notably absent from the list of Argentina's customers in refrigerated beef are the United States and Japan. Hoof-and-mouth disease keeps Argentine meats from these two markets; processed meats are accepted, however.

In summary, African countries absorb a significant share of Argentine beef exports. This share has increased rapidly over the past four years from almost nothing to about 25 percent.

TABLE 1.1

ARGENTINA: REFRIGERATED BOVINE MEAT EXPORTS BY MAJOR WORLD REGION, 1965-1977
QUANTITY-METRIC TONS AT SHIPMENT

Year	World Total	EEC	Spain	Other Western Europe	Eastern Europe	Israel	LAFTA[b]	Africa[a]	Others[a]
1964									
1965									
1966									
1967									
1968									
1969	396,707	256,116	38,201	40,448	13,733	21,860	19,388		6,921
1970	347,956	205,674	38,482	42,934	10,812	22,124	21,752		6,178
1971	236,043	151,597	4,784	20,253	82	19,149	38,025		2,153
1972	385,437	280,535	4,467	26,571	5,807	18,615	48,129		1,313
1973	294,231	219,193	5,332	24,893	1,241	19,907	21,636		2,029
1974	106,306	63,951	3,481	11,527	19,192	5,658	1,991	10	496
1975	79,075	26,877	4,139	8,000	28,114	10,433	22	1,133	357
1976	223,937	74,280	20,140	63,324	11,001	16,275	5,201	31,744	1,972
1977	278,133	82,639	29,852	54,858	34,362	11,665	12,699	46,536	5,520

[a]Africa was included within "others" until 1973.

[b]Latin American Free Trade Association.

SOURCE: Junta Nacional de Carnes, Síntesis Estadística, several years.

TABLE 1.2

ARGENTINA: REFRIGERATED BOVINE MEAT EXPORTS TO MAJOR WORLD REGIONS, 1965-1977.
QUANTITY - PERCENTAGES OF WORLD TOTAL

Year	World Total	EEC	Spain	Other Western Europe	Eastern Europe	Israel	LAFTA[c]	Africa[a]	Others
1964									
1965									
1966									
1967									
1968									
1969	100.0	64.56	9.63	10.20	3.46	5.51	4.89	0.0	1.74
1970	100.0	59.11	11.06	12.34	3.11	6.36	6.25	0.0	1.78
1971	100.0	64.22	2.03	8.58	0.03	8.11	16.11	0.0	0.91
1972	100.0	72.78	1.16	6.89	1.51	4.83	12.49	0.0	0.34
1973	100.0	74.50	1.81	8.46	0.42	6.77	7.35	0.0	0.69
1974	100.0	60.16	3.27	10.84	18.05	5.32	1.87	0.01	0.47
1975	100.0	33.99	5.23	10.12	35.55	13.19	0.03	1.43	0.45
1976	100.0	33.17	8.99	28.28	4.91	7.27	2.32	14.18	0.88
1977[b]	100.0	29.71	10.73	19.72	12.35	4.19	4.57	16.73	1.09

[a] Africa was included within "Others" before 1973.

[b] The volume for Liberia, 2,077 metric tons, was added to Africa and subtracted from "Others".

[c] Latin America Free Trade Association.

SOURCE: Junta Nacional de Carnes, Síntesis Estadística, several years.

II. - Principal African Buyers of Argentine Beef

Four countries account for 22,456 metric tons, or 61 percent of the 36,658 metric tons of beef that Argentina exported to Africa in the first six months of 1978. They are, in order of importance:

Nigeria	20.7 percent
Tunisia	15.2 percent
Egypt	16.0 percent
Angola	9.1 percent

The same four countries accounted for 68 percent of 1977 beef exports:

Nigeria	19.5 percent
Tunisia	19.7 percent
Egypt	11.1 percent
Angola	17.8 percent

No beef exports to any of these countries are recorded for 1975 or before. This fact underlines how recently the African market opened up and how fast it is evolving. Tables 1.3 and 1.4 illustrate this situation.

Nine other countries received the remaining 14,202 metric tons, equivalent to 39 percent of beef exports to Africa in the first half of 1978; five among them -- Liberia, Ivory Coast, Ghana, Togo and Benin -- are the coastal countries forming part of the central West African corridor, the principal concern of this report. All together, the five central corridor countries received 7,671 metric tons, equivalent to 21 percent of the African total. Ivory Coast and Liberia are the two principal markets within the central corridor group; each one absorbs 39 percent of the corridor's share, or 78 percent between the two. Ghana and Togo receive 10 percent each, and Benin contributed the remaining 2 percent.

Figures for 1977 show the central corridor countries with a larger share of the African market: 25.8 percent (11,995 metric tons) of 46,538 metric tons; however, the distribution of this share is slightly suspect: Togo is credited with 6,572 metric tons, or 55 percent of beef exports to the central corridor. This figure is clearly wrong. It

TABLE 1.3

ARGENTINA: REFRIGERATED BEEF EXPORTS TO AFRICA, BY COUNTRY, 1974-1978. SHIPPING WEIGHT (METRIC TONS)

Country	1978 (1st Semester)[a]	1977	1976	1975	1974
Angola	3,339	7,920	1,097	-	-
Algeria	1,936	1,915	-	-	-
Benin	137	b	-	-	-
Congo	1,004	1,513	1,762	-	-
Egypt	5,977	4,936	15,479	-	-
Gabon	732	b	-	-	-
Ghana	807	618	1,696	-	-
Ivory Coast	2,990	2,728	10,655	1,105	-
Liberia	2,992	2,077	159	28	b
Mozambique	2,860	b	-	-	-
Nigeria	7,577	8,691	-	-	-
Togo	745	6,572	-	-	-
Tunisia	5,563	8,748	150	-	-
Zaire	-	802	746	-	10
Total	36,658	46,538	31,744	1,133	10

[a]Only the first semester of 1978 is given.

[b]Country not listed separately this year.

SOURCES: Junta Nacional de Carnes, Boletín Semanal 360/361, Síntesis Estadística Trimestral, II, 1978.

TABLE 1.4

ARGENTINA: REFRIGERATED BEEF EXPORTS TO AFRICA, BY COUNTRY, 1975-1978
F.O.B. VALUE (U.S. $1,000)

Country	1978 1st Semester[a]	1977	1976	1975	1974
Angola	2,374	6,332	637	-	
Algeria	2,241	1,825	-	-	
Benin	97	b	-	-	
Congo	644	1,242	928	-	
Egypt	4,936	5,027	9,069	-	
Gabon	646	b	-	-	
Ghana	640	544	929	-	
Ivory Coast	2,320	2,121	4,889	485	
Liberia	2,035	1,746	121	51	
Mozambique	2,127	b	-	-	
Nigeria	6,142	8,406	-	-	
Togo	521	5,325	-	-	
Tunisia	5,068	8,132	86	-	
Zaire	-	629	430	-	
Total	29,791	41,329	17,089	536	

[a]Only the first six months are included for 1978.

[b]Country not listed separately this year.

FIGURE 1.1
ARGENTINA: BEEF EXPORTS, 1973-77
(000 metric tons)

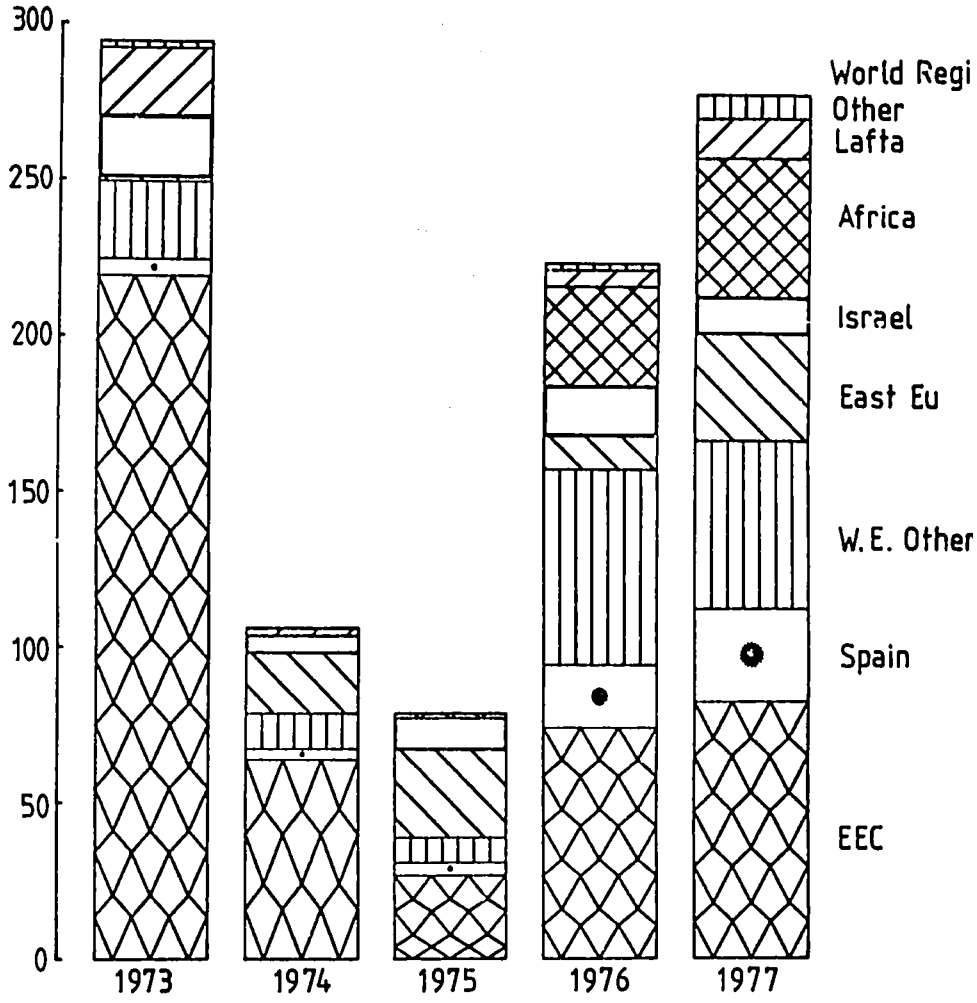
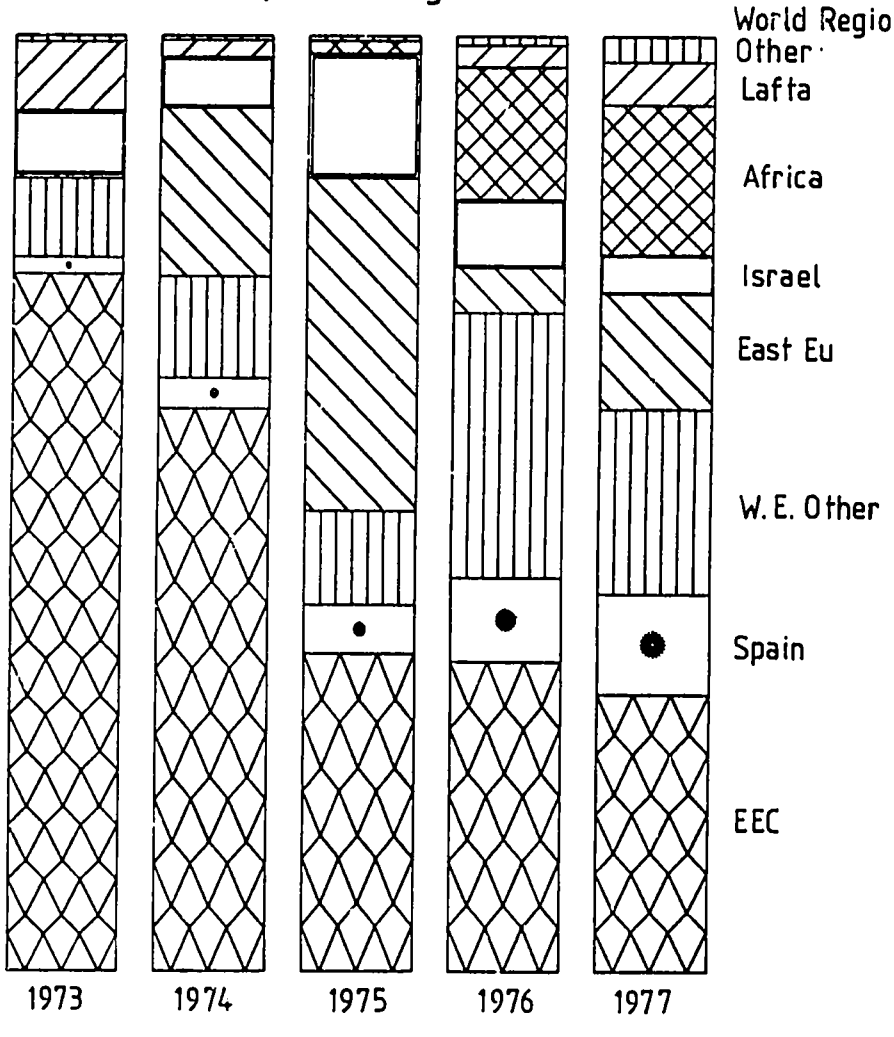


FIGURE 1.2
ARGENTINA: BEEF EXPORTS, 1973-77
(percentage)



appears that Togo was credited for shipments actually going to Ivory Coast. Beef exports to Ivory Coast in 1977 are given as 2,738 metric tons, or 23 percent of the central corridor; Liberia contributed an additional 17 percent, and Ghana absorbed the remaining 6 percent. Benin is not credited with any beef exports in 1977.

Apart from the four major African importers mentioned above and the five central West African corridor countries, four additional countries purchased significant amounts of refrigerated beef from Argentina in 1978. Algeria, Mozambique, Congo and Gabon together shared 6,532 metric tons of beef, or 18 percent of the total exported to Africa. Zaire did not receive any refrigerated beef in the first six months of 1978, although it did purchase 1,113 metric tons of bovine offals and corned beef.

While there appears to be no common denominator linking the fourteen African states currently buying beef from Argentina, several common factors can be identified. Most obvious of all is the fact that all of them are coastal countries. Of course, port facilities are necessary for ocean-going vessels, but it also points out the unfavorable natural conditions for cattle raising in the coastal countries of Africa, either because of desert environments or the presence of the vector of trypanosomiasis, the tsetse fly.

French predominates as the official business language in eight importing countries, but English, Portuguese, and Arabic are spoken in the others.

Mineral wealth and its concomitant availability of foreign exchange also seems to contribute to the propensity to import beef: crude oil constitutes the principal export item in six countries, and iron ore, phosphates, and copper are the main sources of foreign exchange for Liberia, Togo, and Zaire, respectively.

Egypt, Algeria and Tunisia are Mediterranean nations, while the others, with the exception of Mozambique, border on the Gulf of Guinea. The three Mediterranean states are, of course, Arab and Muslim nations, while the rest are black nations.

In relation to the rest of the continent, the group of beef importers are among the more prosperous countries, with incomes per capita above the average for Africa as a whole -- Benin and Zaire are exceptions, however. The ranking of the fourteen countries according to gross national product corresponds roughly to their relative shares of beef exports to Africa.

To summarize, the upsurge in Argentine beef exports to Africa since 1975 is not confined to the central West African coastal countries. In fact, those countries account for only a small proportion of total beef exports to African nations. The principal African buyers of Argentine beef are Nigeria, Tunisia, Egypt and Angola. An increasing number of African states are turning to Argentina to supplement their beef requirements.

III. - The Rise of Beef Exports to Africa

In order to understand the rapid penetration and diffusion of frozen (and chilled) beef from South America in the African market, it is necessary to place this development within the context of the times. On the demand side, one can identify several factors that tended to push beef prices upward in the coastal countries of Africa. On the supply side, several circumstances contributed to a sharp decline in beef prices in the world market, but particularly so in Argentina.

The economies of the coastal West African countries, not directly affected by the drought, exhibited sustained growth in gross national product and per capita incomes in the 1970s. This improvement in income coupled with rapid urbanization has generated a rapid expansion of the demand for beef.

A. - OPEC and World Recession

The most significant single event of the years preceding the opening of the African market for South American beef was the quadruple increase

in international oil prices effectively imposed by the Organization of Petroleum Exporting Countries (OPEC).

The economic shock waves of this increase were particularly felt in Europe, which depended almost completely for its oil supplies on the countries of the Middle East. The repercussions of the oil price hike for Argentine beef exports were soon evident: Europe as a whole, and the European Common Market in particular, drastically reduced beef imports from outside Europe. This was as much a consequence of the contraction of aggregate demand as of the import restrictions imposed to conserve diminished foreign exchange reserves.

B. - EEC Agricultural Protectionism

But there is more to the drop in Argentine exports than the impact of higher oil prices. The EEC had been until then the principal and predominant market for Argentine beef. The United Kingdom in particular had, since the turn of the century, been the main and sometimes the sole customer for Argentina's beef. The effects of the Common Agricultural Policy (CAP) on the structure of trade in livestock products was devastating for Argentina. Pressured by agricultural producers within the Community in 1973 and 1974, the EEC adopted a very tough protectionist policy aimed at favoring European farmers, especially livestock producers. As a result, a very fast increase in intra-European trade in beef and other kinds of meats developed, while imports of meats from outside the community came to an almost total stop. Vast quantities of surplus dairy and meat products have accumulated in the Community as a result of increased production stimulated by higher prices. Former exporters of dairy products to the EEC (like New Zealand) and of beef products (Australia, New Zealand, and Argentina) suffered sizable losses in their exports.

C. - Worldwide Beef Cycle

The restrictive import policies adopted by the EEC in 1974 were introduced during a period of particularly high cattle production within

the EEC, mostly the result of cyclical factors within the European cattle industry. The restrictions were therefore as much a measure aimed at protecting EEC farmers from a sharp drop in prices as a policy to increase the EEC's self-sufficiency in livestock products.

Alarming as this development was, the full impact of the EEC measures did not disturb the Argentine cattle industry as much as one would have anticipated. It happened that the Argentine industry was at the time undergoing a period of high prices and low production that were partly relieved by the drop in sales to Europe. That situation was part of the general cyclical pattern of Argentine cattle production, discussed in greater detail elsewhere. The full impact of the European policy regarding imports of beef became apparent only in 1975. Prices for Argentine cattle fell and the entire export sector of the industry was thrown off balance. The initial complacent idea that the European market would soon open had to be abandoned, and it became evident that Argentina had to try harder to develop new markets for its principal export item. It looked to the very same oil producers that now had wealth to spare and whose own natural resource bases tend to be unfavorable to agricultural activities. The Middle and Near Eastern nations have become customers for Argentine beef, but they remain marginal markets at best, even though their potential absorptive capacity is great. Argentina, of course, is not the only meat exporter courting the oil-rich countries for markets. Australia and New Zealand have equally ambitious hopes and might be better located in terms of established shipping routes. In Africa, however and especially on the Atlantic coast of Africa, Argentina has a locational advantage.

D. - United States and Japan

The United States and Japan, major world meat importers, were also at the time restricting their imports of beef from Australia and New Zealand. Voluntary import quotas were negotiated to avoid drops in domestic beef prices. The import of live cattle and meat from Mexico stopped. Japan, also affected by the jump in oil prices, was curtailing

its imports of beef as much as possible. The net effect was a generalized beef glut in the world market.

E. - Hoof-and-Mouth

Finally, there is the hoof-and-mouth issue. European countries, though free of hoof-and-mouth disease, have traditionally imported meat from South America, where it is endemic. During the late '60s and '70s there occurred several outbreaks of hoof-and-mouth in Europe, particularly in the United Kingdom, with heavy consequences for the cattle sector. The European Community has therefore adopted a stricter sanitary code for beef imports, prohibiting the importation of meat with bone, since the bone is more likely to contribute to the spread of the hoof-and-mouth virus. Even Switzerland, which is not a member of the Community, has adopted strict hoof-and-mouth veterinary regulations.

F. - Developments in Africa

Ivory Coast and Liberia were the first two African countries to begin importing beef from Argentina in 1975. These countries were at the time suffering from the severe reduction in livestock inventories caused by the recent drought in their traditional supplier states, Mali and Upper Volta. The Sahelian drought also contributed to the subsequent entry of imported frozen beef into other West African countries, notably Nigeria, Ghana, Togo and Benin. To a lesser extent, the effects of the drought in Chad and northern Cameroon diminished the flow of livestock and meat to countries on the eastern edge of the Gulf of Guinea, namely Zaire, Congo and Gabon.

G. - Economic Growth in Africa

Africa as a whole has maintained high rates of economic growth during the last decade. Much of this growth may be attributed to the sharp rise in petroleum prices that started in October 1973. This is certainly the case for Algeria and Libya in North Africa, Nigeria in West Africa, and Gabon in Central Africa. Sudden wealth generated by the oil boom has

benefited mostly the urban sector and the segment of the labor force engaged in wage employment. These groups presumably have higher than average propensities to consume meat and have therefore generated a rapid expansion of demand for imported red meats.

Africa, as other developing regions of the world, exhibits extremely high rates of growth in urban population. Migration from the countryside to the major urban centers has contributed to greater consumption of beef and other meats.

A general increase in commodity prices, including agricultural products, helped to increase the foreign exchange earnings of some African countries. These additional earnings greatly facilitated payments for all kinds of imports in general and of beef in particular. The prices of coffee, timber and cocoa were at particularly high levels during the years following 1974. Despite the worldwide economic slowdown since 1974, the rise in prices did help African countries to compensate for the reduced quantity of imports from the industrial nations.

The Nigerian economy recovered swiftly from the Biafran civil war. The rapid expansion of the oil industry, coupled with the increase of international oil prices, generated a veritable boom. On the other hand, agricultural production lagged behind other sectors during the 1970s. The cattle industry suffered both from the effects of the Sahelian drought in the north and from the decline of the agricultural sector in general. Nigeria, however, was late in seeking to satisfy its meat requirements from the world market. This was primarily due to the congestion that occurred in the country's ocean ports. It was not possible to import perishable commodities like beef, even frozen, by ship. It is only in more recent years that partial clearing of the ports allowed ocean-going shipments of meat to Nigeria.

CHAPTER TWO

TRANSPORT OF BEEF FROM ARGENTINA TO AFRICA

Meat exports from Argentina to the West African coast are currently being made by both ship and plane. The great bulk of exports is, of course, shipped frozen in ocean-going vessels; air shipments are used only for high quality, high priced cuts to supply elite markets in the capital cities. Air freight shipments consist of cuts that have been carefully wrapped in polyethylene bags, packed in carton boxes and cooled to 0°C. Ocean freight is used for whole carcasses or quarters, offals, and lower-priced carcass sections, frozen to -18°C and wrapped in canvas and vacuum-sealed plastic bags.

I. - Air Freight

A. - Passenger Aircraft

Only Monrovia is reported to have received direct shipments of chilled meat from Buenos Aires, using regular airline flights. No other captial in the central corridor countries has direct airline connections with South America. Varig, the Brazilian airline, does have direct flights from Lagos to Rio de Janeiro and Sao Paulo. The initiative for flying meat to Monrovia was taken by the Scandinavian Airlines (SAS) agents in Monrovia and Buenos Aires. The agent in Buenos Aires contacted the exporters, while the one in Monrovia took care of arrangements with the importer. At one time, SAS had a regular fueling stop in Monrovia for flights between Europe and Buenos Aires. These SAS flights were discontinued in 1977; that route is being served now by KLM, the Dutch airline, with additional stopovers in Montevideo, Sao Paulo, and Rio de Janeiro. KLM has continued the air shipments of meat, but with diminishing frequency. Only two shipments were made in the first eight

months of 1978, and in 1977 there were only three or four shipments. Monrovia is now well supplied by ship. Air shipments usually are made for quantities from 1.5 to 2.0 metric tons only.

Stopovers along the way do not pose any risk of deterioration for the chilled meat in the cargo hold of the airplane. No special insulation is needed. The high altitude and low pressure of long distance flights keep the meat at sufficiently low temperature and low air pressure to prevent risk of spoilage. Normal ground time during stopovers does not warm the meat appreciably. Ordinarily the airlines for reasons of economy do not heat nor maintain normal air pressure in the baggage compartment. The planes are equipped to do both things, but only when there are live animals in the cargo hold does it become necessary to heat and pressurize it. When chilled meat is being transported, the only precaution needed is that there be no pets carried in the cargo hold.

Neither SAS nor KLM encountered problems in hauling meat to Liberia; good coordination was assured in part by the good communications networks maintained by the airlines and in particular between the bureaus in Monrovia and Buenos Aires. The local agencies managed to coordinate the smooth loading and unloading of chilled meat at the two airports.

Meat has a preferential rate for air transport in passenger-carrying aircraft, compared to other types of commercial products. The preferential rates are mandated by the Argentine Civil Aviation Authority. Meat pays less than half the regular rate established by IATA under international agreements; i.e. it pays only US $1.12 per kilogram, as opposed to the $2.45 minimum paid by regular merchandise. Higher rates are levied on particularly valuable or somehow special merchandise. (These rates were effective in August 1978 at the time of the visit by the author to Buenos Aires.) The same rates quoted for Monrovia were quoted for Europe. In April 1978, when the last air shipment was made through KLM, the rate was US $.98 per kg, and in March 1977 it was only US $.82/kg.

SAS, KLM, Swissair, and other European airlines regularly fly chilled beef, lamb and even horsemeat to Europe. KLM in particular

reports making regular shipments of meat to Athens and Zurich, with a transfer time of twenty-four hours in Amsterdam, where there are refrigeration facilities at the airport, provided by the airline itself. KLM could not provide the names of the actual exporters of chilled beef to Europe: their contacts are normally with a freight forwarder (agente de carga) who is acting on behalf of an export broker (despachador). The frigorificos providing the merchandise were unknown to KLM. In addition to beef and lamb, Argentina ships fruits and flowers by air to Europe during the winter months in the northern hemisphere. These products also enjoy the same special half-rate for perishable goods as do beef and other meats.

At the time of the author's visit to Buenos Aires, apart from the sporadic shipment to Monrovia no regular air shipments of chilled beef were taking place to any West African capital on scheduled passenger airline flights.

B. - Charter Aircraft

In the absence of regularly scheduled flights between Buenos Aires and West Africa, and with the exception of Monrovia, exports of high quality beef cuts have been made using chartered aircraft. Only one cargo airlines, Transports Aereo Rioplatense (TAR) is known to be flying red meat from Buenos Aires to West Africa. This company specializes in air cargo service; originally it served Argentina and neighboring countries, but now it maintains regular cargo flights to both Europe and the United States.

In 1977 and 1978 TAR made flights to Abidjan, Lagos, Brazzaville, Kinshasa and Kano. Cargo on most of these flights consisted of beef and lamb, but live zebu cattle have been flown to Nigeria from Brazil, and industrial equipment and parts have also been flown to Kano from London. TAR has a network of agents representing it in the principal European capitals, with Basel, Switzerland the center for its European operations.

Flights to African destinations are usually one-shot, sporadic deals; the notable exception involves Abidjan, where TAR has been making almost regular flights twice a month carrying beef in either cartons or quarters. The standard charge for a chartered flight to West Africa is US $45,000 for a Boeing 707 converted for cargo transport, with capacity for thirty-six tons, equivalent to a rate of $1.25 per kilogram. Under contracts assuring some continuity and regularity of flights, reductions of $1-2,000 per flight can be negotiated. The charter fee includes loading in Buenos Aires, but it does not include unloading in Abidjan, which is the responsibility of the importer or his agent. In addition, there is a valuation charge of 0.5 percent of FOB value, and an insurance fee also of 0.5 percent of CIF value. Landing fees at the port of destination and intermediate stopovers are included as part of the charter fee. Some additional charges may be made for particular airports to account for differences in the cost of jet fuel at the airport of destination.

The aircraft does not make the flight to Abidjan directly; it makes a refueling stop in Recife, Brazil before crossing the Atlantic. The flight to Recife takes four hours; five additional hours are needed to reach Abidjan. After unloading in West Africa, the plane does not return to Argentina, but continues north to Europe. No separate cargo is taken from West Africa to Europe since TAR does not yet have agents in Africa. Although it would be possible, TAR does not accept cargo for intermediate destinations in West Africa. Each additional landing would cost between US $3,500 to US $4,500, depending on the port. Another important consideration discouraging double landings is the risk of spoiling the remaining cargo by spending too much time on the ground, either because of lack of coordination in loading the first portion of the shipment, or possible red tape.

In view of the special nature of the cargo, the lack of other high-priced merchandise to go to Africa, the lack of cargo from West Africa to Europe, and the infrequency of shipments, TAR charters the entire plane for flights to West Africa; it does not accept partial loads. It deals with only one freight forwarder who might coordinate the meat

shipments of several packing companies, but TAR does not concern itself with consolidating those shipments. Moreover, TAR charges exactly the same rate to Abidjan as it does to Basel, on the ground that the plane must fly empty from Abidjan to Europe. To London and Paris the rate is US $3,000 higher as a result of the greater congestion of the cargo terminals in those cities.

Charter freight rates are not under the jurisdiction of the IATA agreements; nevertheless, TAR maintains its rates in line with those charged by passenger airlines. For Europe the rate is US $2.50 per kilogram for regular merchandise, but special products pay higher rates. Meats and other perishable products, on the other hand, pay only half the standard rate as is the case on regular airlines.

Few problems are reported by TAR in airlifting refrigerated meat to West Africa; their major preoccupation is having the importer make arrangements for prompt unloading and customs clearance of the cargo at the destination. Mechanical difficulties with the aircraft pose an occasional but considerable risk; for that reason, TAR maintains a working arrangement with cold storage and refrigerated trucking companies in Rio de Janeiro and Recife. Replacement of a turbine during one of the flights to Abidjan once made it necessary to unload and refrigerate the entire cargo of beef in Recife.

II. - Ocean Freight

Most of the frozen beef being exported to Africa is shipped frozen in specially equipped vessels with cold chambers that keep cargo at -18°C. Five or six years ago there were no direct connections between Argentina and Africa; occasional shipments of general cargo were accepted on an irregular basis. Ships going to Africa are usually of smaller capacity, fitted for general cargo, with only one section equipped for refrigerated cargo.

No use is made of containers for the transport of frozen beef to Africa. Containerization is causing a mini-revolution in the world of ocean shipping, but Argentina has been slow in adapting to this trend. Containers require specially constructed ships and loading and unloading facilities. There is some use of containers by Prudential Lines for transport of both refrigerated and general cargo to the United States, but otherwise its use in Argentina is minimal. The greatest advantage of the container system is the door-to-door service provided between the shipper and the consignee, and the standardization of handling and transport equipment. On the other hand, it requires an uncommon degree of coordination and organization by the transport companies involved. Such organization is not likely to develop in Africa in the near future; the use of containers for the shipment of refrigerated meat is therefore not envisaged for Africa.

There are now several shipping companies that have in the recent past established fairly regular service to African ports from Argentina. These shipping companies have agencies in Buenos Aires which handle their local business arrangements, but central headquarters for most of them are either in Europe or in the United States. A particular agency in Buenos Aires may represent several shipping companies, but each shipping company normally has only one agency to represent it.

A. - Sources of Information

Information regarding arrival and departure of ships to and from the port of Buenos Aires appears regularly in the major daily newspapers of the city. The English business daily Buenos Aires Herald maintains extensive coverage of the shipping situation. The trade bi-weekly Boletín Marítimo de las Exportaciones Argentinas (BOMAR) is a very complete source of information regarding movement of ships at the port, and at the same time lists the contents of each ship's cargo, by shipper, type of product, volume, value and port of destination. A complete series of that weekly is maintained at the USDA periodical library in Washington, and is available for public reference. BOMAR also issues quarterly and annual summaries of information by shipper, product,

country of destination, etc. For ocean freight, therefore, it is possible to have a complete list of shippers by country and specific product. Basically the same information related to beef and other meats may be obtained from the Junta Nacional de Carnes, free of charge, but this requires continuous monitoring of their voluminous flow of statistics.

B. - Shipping Companies Dealing with Africa

The two principal shipping lines connecting Buenos Aires with ports in Africa are Niver-Pireus Lines, a Greek-flag carrier based in Geneva, and ELMA, the government owned Argentina merchant marine company (Empresa de Lineas Maritimas Argentinas). There are other lines offering service to West Africa, particularly to Nigeria through the Nigerian South America line,which has one small ship in regular service between ports in Argentina, Uruguay, Brazil and the Nigerian coast. Delta Steamship Lines of New Orleans also accepts general cargo for West Africa, but does not have direct sailings between the two continents. Crest Line, a Panamanian-flag carrier, also offers the services of two ships, the Neva and Crest Lion, connecting Buenos Aires and Montevideo with Lagos, for both general and frozen cargo. Emery Lines of Panama also has direct sailings between Buenos Aires and Nigeria with one ship, the Bekumersand, but offers only general cargo service, i.e. no cold chambers are available.

1) - Niver-Pireus Lines

In terms of frozen beef shipments, one of the most active shipping lines is Niver-Pireus Lines, a Greek flag line with head offices based in Geneva, Switzerland. They are represented in Buenos Aires by the agency Compañía de Navegación Atlántico Austral (South Atlantic Shipping Company). Niver-Pireus has two completely refrigerated small ships -- Kos and Kea -- departing from Buenos Aires for the African ports on the Atlantic Ocean, and continuing from there to ports in Mediterranean. There is no return cargo from West Africa to Argentina, and since these are totally refrigerated ships, they stay at the port the minimal amount of time to

unload; they do not normally carry cargo from West Africa to the Mediterranean, either. The usual itinerary is to start in the southern ports of Angola and advance north along the coast of Africa, but back-tracking sometimes is necessary when the traffic situation at a particular port is not favorable.

Crossing of the Atlantic takes only ten to twelve days, but the total duration of the trip extends to eighty or ninety days, since ships go all the way to the Mediterranean. The principal ports touched in Africa are Abidjan, Libreville, Pointe Noire, Dakar and Monrovia. Luanda and Têma are also included occasionally; Matadi and Lagos are both avoided because of the congested conditions and poor service in those ports.

Frozen quarters are simply laid on the floor of the cold chambers and piled up as they are loaded; formerly the ships were equipped with rows of hooks for the transport of chilled carcasses, but they were dismantled to increase capacity to accomodate frozen beef only. Refrigerated capacity of the vessel Kos is only about 2,000 metric tons. It was not possible to visit the ships themselves since the port of Buenos Aires is off limits to the public for security reasons.

(a.) - Freight Rates and Other Charges. There is no international accord governing freight charges between South America and Africa, unlike the situation for Europe, North America, and other developed areas of the world. There are no schedules of freight rates, which means that there is room for negotiated rates between the shipper and the shipping company, depending on the port and the volume involved. The quoted freight rate between Buenos Aires and any port on the Atlantic Coast of Africa was $150 to $170 per metric ton in August 1978. There may be some surcharge for a given port if the service is particularly bad and if the beef has to wait more than one day to unload. Rates do not vary for different ports in Africa since the carrier reserves the right to visit those ports in any convenient order, rather than according to a schedule.

Freight rates cover only transport costs; loading and unloading are arranged for and paid separately. Loading is coordinated by the

shipping agency or the freight forwarder; for unloading, the ship puts the cargo on deck, but beyond that it is the responsibility of the importer in Africa or its customs representative. Insurance is also arranged separately between shipper and importer, depending on the terms of sale for the merchandise. The shipping company is paid for transport by the shipper or freight forwarder upon presentation of the bill of lading signed by the ship master and the port authorities, regardless of time and condition of merchandise when delivered at the destination.

In shipments to Africa the shipping agency is not directly involved in setting transport charges; the actual figures have been previously agreed upon between the head office of the shipping company in Geneva and the European commercial agent coordinating the entire operation. The shipping agency views its role more as overseeing the loading of the shipment rather than acting as an independent agent for the shipping company. Instructions are received by them through telex and are simply carried out.

2) - ELMA

The Empresa de Linea Maritimas Argentinas (ELMA) is a para-statal enterprise integrating all major Argentine merchant shipping lines with the rest of the world. Although the firm supposedly operates on a commercial basis, the Argentine government intervenes in its operations and also subsidizes them.

Currently, a minor share of ELMA's business has been with Africa or the Middle East, but these two regions of the world are rapidly growing in importance. Most of the shipping by ELMA is between Argentina, Western Europe and North America.

ELMA has two ships in regular service between Argentina and African ports on the Atlantic, the Río Belen and the Lago Alumine. Both ships follow the circuit Buenos Aires-Santos-Rio de Janeiro-Banjul-San Pedro-Abidjan-Tema-Point Noire-Matadi-Lobito-Buenos Aires. Monrovia and Libreville may also be visited if there is enough cargo. The complete round trip lasts eighty-five days or a few more if a port is unusually congested. The portion from Buenos Aires to Abidjan lasts only twenty-five days.

This line to Africa was started by ELMA in early 1977 in response to the development of meat exports to that part of the world, but the ships are equipped to handle both refrigerated and general dry cargo. In addition to frozen beef, mutton, poultry and fish, the two ships carry grains, wines, fruits, processed foods, and industrial and automotive equipment. Returning from Africa the ships bring loads of logs and timber.

(a.) - Freight Rates. A new schedule of freight rates between Buenos Aires and any port in the west coast of Africa was made effective by ELMA starting August 1978 (Table 2.1). Rates are given on a FAS (free alongside) basis, i.e. loading is the responsibility of the shipper but the ship itself unloads the cargo on the pier. Only the basic rate is given below, but it needs to be kept in mind that in addition there are several possible surcharges:

(a) Some ports may be declared congested for some periods; loads to those ports are penalized with an additional US $10 per metric ton. In August 1978 only Matadi had such a status; ELMA does not call on Nigerian ports at the moment.

(b) A bunker surcharge of 10 percent is applied to all West African ports to compensate for the higher cost of fuel.

(c) A tax of 2 percent of the total freight cost is levied by the government as a contribution to the Argentina Merchant Marine Fund.

ELMA accepts small-scale shipments from individual exporters, but a minimum of 100 tons from one or several shippers is necessary to justify stopping at a given port. Río Belen has a total refrigerated capacity of 800 metric tons of boneless meat; the smaller ship Lago Alumine holds only 600 tons. In terms of bone-in meat the capacities are reduced by about 25 percent as a result of the greater volume occupied by carcasses and the difficulty in stacking them up: a ton of boneless beef takes up seventy-five to eighty cubic feet of space, while bone-in occupies about 110 cubic feet. Fish in boxes take seventy cubic feet per ton, and in bags, ninety to 100 cubic feet per ton.

TABLE 2.1

BASIC OCEAN FREIGHT RATES FOR REFRIGERATED MEATS, BETWEEN BUENOS AIRES AND PORTS IN WEST COAST OF AFRICA, ELMA, EFFECTIVE AUG. 1, 1978 FAS BASIS
(US $/mt)

Meat and cuts, chilled, in carcass or cartons	180
Lamb carcasses, frozen	160
Meat, frozen, bone-in, tails and tripe	140
Meat, frozen, boneless, offals	130
Chickens, frozen	110
Fish, frozen, in cases	140
in bags	160

SOURCE: ELMA.

In October 1978 ELMA inaugurated a new line of service for both general and refrigerated cargo between Buenos Aires and ports in the Middle East. The ship Río Cincel is scheduled to call at Durban (South Africa), Jeddah (Saudi Arabia), Kuwait, Khorramshar (Iran), Basrah (Iran) and Daman (India). This itinerary clearly reflects Argentina's increasing interest in the potential market for its agricultural products in the Middle Eastern states.

3) - Other Lines

Agencia Marítima Fletamar is the representative in Buenos Aires of the Nigerian South America Lines, which has a small ship on regular service between Lagos and ports in Argentina, Uruguay and Brazil. The ship, Ileoluji, has capacity for only about 250 tons of refrigerated cargo, used mostly for frozen beef. Frozen fish and poultry are also shipped with some regularity; frozen fish needs to be shipped in separate chambers to prevent odor contamination of frozen beef or poultry. The ship returns to Argentina every sixty days or so, though the regularity

is not guaranteed because of the uncertainty of the Lagos port. The freight rate for frozen beef, with or without bone, between Buenos Aires and Nigeria is US $ 176 per metric ton, but in addition there is a 50 percent surcharge for congestion of the port and US $1.07 per ton for port charges in Lagos. For frozen fish the same rates apply. Ileoluji only serves Nigerian ports; it does not call on other ports in West Africa. Fletamar professes to have little say in who exports meat in the ship; they receive instructions about impending shipments and reservations of space from their armadores, the head office of the shipping company in Lagos.

Emery Lines of Panama represented by the agency Transworld has one ship -- Bejumersand -- in regular direct service between Buenos Aires and ports in Nigeria, but only for general cargo, not for refrigerated service. This is a small ship that can unload in floating jetties, without having to wait for room at the main docks. Although unloading is slower and more costly, the time gained compensates for the additional cost.

The Brazilian fleet Lloyd Brosileiro has also assigned the vessel Serifos for general cargo service to the west coast of Africa, from Luanda to Freetown but not to Nigeria.

CHAPTER THREE

MEAT EXPORT AGENTS AND FUNCTIONS

A surprising and revealing feature of trade in red meat from Argentina to West Africa is the absence of direct contacts between African importers and Argentine exporters. Commercial arrangements between the two are consistently made through the intermediation of European agents. The role and importance of these middlemen are not readily apparent and are difficult to substantiate, since for documentation purposes it is the meat-packing companies who appear as the exporters, and the commercial houses themselves prefer to maintain a low profile.

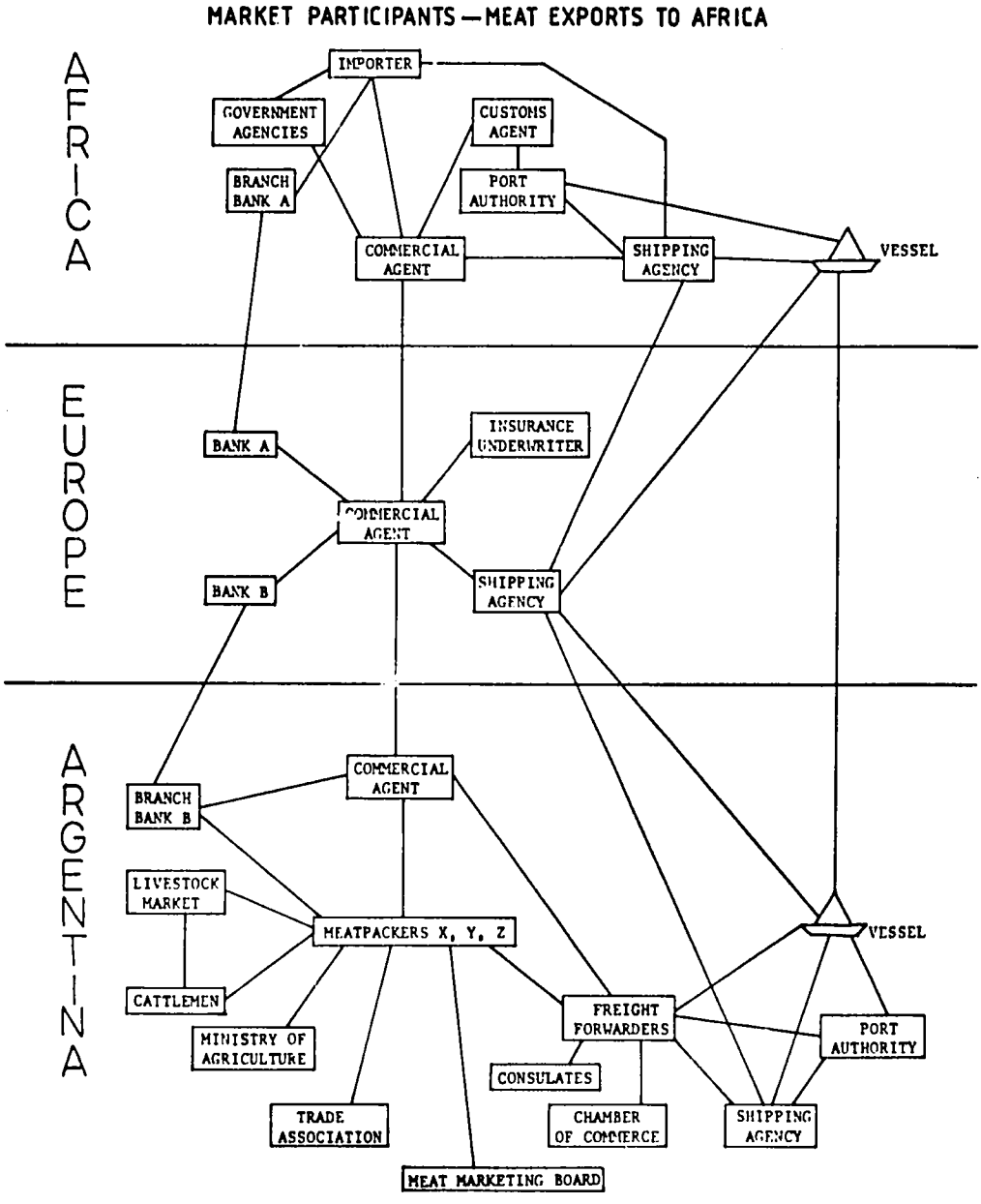
A shipment of frozen beef from Buenos Aires to Abidjan, for instance, requires the coordinated decisions and activities of a large number of participants located in West Africa, Europe, and South America. Figure 3.1 has been drawn to help explain the multiplicity of relations linking the market agents.

I. - The Export Mechanisms

A shipment normally originates when an African enterprise involved in the marketing of meats at the retail or wholesale level decides to acquire additional beef supplies from the international market. Until very recently such an enterprise probably concerned itself only with the domestic market and therefore lacked both familiarity with importation procedures and established contacts with operators in the world market. On the other hand, until 1975 international suppliers had no established representatives in Africa.

Under such circumstances the potential importer finds it advantageous to turn to a commercial agent who has both experience in the foreign trade field and connections in centers of commerce where potential suppliers can be contacted. Local agents of European trading companies

Figure 3.1


MARKET PARTICIPANTS—MEAT EXPORTS TO AFRICA
AFRICA
EUROPE
ARGENTINA
IMPORTER
GOVERNMENT AGENCIES
CUSTOMS AGENT
BRANCH BANK A
PORT AUTHORITY
COMMERCIAL AGENT
SHIPPING AGENCY
VESSEL
BANK A
INSURANCE UNDERWRITER
COMMERCIAL AGENT
BANK B
SHIPPING AGENCY
COMMERCIAL AGENT
BRANCH BANK B
LIVESTOCK MARKET
MEATPACKERS X, Y, Z
VESSEL
CATTLEMEN
FREIGHT FORWARDERS
PORT AUTHORITY
MINISTRY OF AGRICULTURE
CONSULATES
TRADE ASSOCIATION
CHAMBER OF COMMERCE
SHIPPING AGENCY
MEAT MARKETING BOARD

which already handle a large volume of commerce between Europe and West Africa fulfill these functions.

The commercial agent in the West African capital transmits the request for quotation to its parent company in France, Belgium, England, or Switzerland. The European trading company may then pass the request directly to its own agents in Buenos Aires or another major red meat exporting center (Figure 3.1). Among the firms reported to deal with beef exports to African countries, the following may be mentioned: Dreyfus, Salomon, Impexa (a subsidiary of Dreyfus), Biret (French), Sogeviande (French), Foodex (Swiss) and Kaslin (Swiss). Only Foodex, the Montevideo representative of Infoodco, a Geneva-based trading company, confirmed being engaged in exports to Africa; Kaslin, although very knowledgeable about the African market, had not carried out any shipments when queried. No confirmation was made for the other agencies mentioned.

The commercial agent in Buenos Aires of the European trading company contacts the many alternative meat packing houses surrounding Buenos Aires. An actual shipment consists of contributions from several frigorfficos or meat packers.

A pro forma invoice is transmitted via telex to the main office of the trading company in Europe, where, after consultation with the prospective shipping company and an insurance underwriter, a CIF pro forma invoice is completed. Of course, the commissions and profit margins for the services of the commercial agencies are also incorporated.

If the African importer accepts the CIF pro forma invoice, he opens a letter of credit with an international banking institution, most likely a branch of a European bank, in favor of the European commercial agency, payable upon receipt in good condition of specified merchandise. The local commercial agent may be helpful to the importer in obtaining the necessary import license and foreign exchange permits from the appropriate government agencies. A portion of the CIF amount is normally deposited with the bank by the importer at this time.

In turn, the European trading company opens a second letter of credit with a bank having a correspondent in Buenos Aires. This new letter of credit is established for the FOB value in Buenos Aires in the name of

the individual packing houses participating in the shipment and/or the European commercial agent in Buenos Aires. The responsibility to orchestrate the diverse Argentine participants falls mainly on a despachante de aduana or freight forwarder specialized in procedures for exporting frozen cargo by ship. Besides coordinating the shipment, the principal function of the freight forwarder is to insure that the documentation necessary for the shipment and for banking purposes is prepared on time. The documentation for each shipper is assembled in the hands of the freight forwarder charged with coordinating and expediting the shipping.

Once the documentation is ready, meat may be trucked to the side of the ship directly from the packing plants, or it may have been brought earlier for storage in refrigerated cold rooms at the port. After the ship is cleared for departure, the freight forwarder takes the documentation package back to the commercial agents and the meat packers. The Buenos Aires bank then makes payments according to the terms of the letter of credit. The European trading house then forwards to its local agent in Africa the documentation needed to receive the shipment. Importing procedures once the shipment has arrived in port are primarily the responsibility of the importer, but the experience and contacts available through the established European commercial agent may prove valuable in insuring a smooth and rapid clearing of the order through port authorities.

II. - The European Connection

The role of European commercial agents in exports to Africa is openly resented in Argentina. The feeling among some exporters is that those agents increase substantially the cost of Argentine beef to the African countries, thus limiting the extent of that market. Efforts have been made to break through the intermediation of the European commercial agents but so far with little success. Official trading missions as well as representatives of private groups have in fact visited several African countries with the intent of opening direct commercial links with potential beef importers. They have invariably come back disappointed,

unable to agree with the African importer regarding the terms of transaction.

The absence of mutual trust is at the roots of this impasse. In order to protect his interests, the African importer insists on making payment contingent upon receipt of frozen meat in satisfactory condition. This seemingly innocuous clause exposes the Argentine exporter to unacceptable risks: payment becomes conditional upon the subjective evaluation of the meat by an African inspector over whom he has no leverage; lacking any local representative, the exporter is powerless to defend his interests once the shipment arrives in port. Moreover, the exporter would then assume the risks involved in transporting frozen beef by freighter; even when insurance coverage is provided, it would be the responsibility of the exporter to substantiate the reason for the loss. Again, given the small size of orders, limited knowledge of the African market and lack of local representatives, this is a potential source of difficulty that the Argentine exporter would rather not assume.

Finally, Argentine exporters are reluctant to extend the short-term credit implied by the payment-upon-delivery provision. In view of the extremely high rate of inflation in Argentina and the declining value of the dollar vis-à-vis other currencies, Argentine exporters are unwilling to take risks in the currency market. Further discouragement is added by the Central Bank of Argentina, which requires deposit of the FOB value in dollars within eight days of the ship's departure. Exports of frozen beef from Argentina are thus made almost exclusively on the basis that payment is received by the shipper upon loading of the order and freight costs are paid in advance.

In light of these factors limiting direct commercial transactions between African importers and Argentine exporters, the significance of the role of the European commercial agents becomes easier to appreciate. To begin with, it is doubtful that without their intervention, the trade in red meat from South America to Africa would have developed as early and as rapidly as it did. These commercial agents perform services which other participants in the market are not in position to provide.

First is the matter of knowledge; some years ago there were no common established commercial channels to put African beef importers and Argentine exporters in direct contact. Until then the Argentine beef trade had been directed almost exclusively toward Europe, the United Kingdom especially. Colonial relations had also left African countries with a pattern of trade predominately flowing toward Europe. It was then only natural that initial contacts regarding the beef trade developed first through European trading intermediaries.

Also there is the question of mutual trust. European trading houses are well established concerns with solid financial backing and a strong reputation for integrity and delivery. They have maintained long and continuous presence in those countries where they operate, whether in Africa or in South America. Their representatives are there, in the country, personally accessible to all parties. In the event that claims or difficulties arise, these can be discussed in person, promptly, in the local language, and under local customs; this is altogether preferable to dealing with a little-known concern across the ocean.

Third, the European trading house with its local commercial agents constitutes a very efficient system of communication between the African importer and the Argentine exporter. Through their network of telex lines, messages may be relayed between Africa and South America via Europe with only minimal delay. There is hardly a comparable alternative system; the postal service, telephone, and even telegraph connections between Africa and South America are not sufficiently dependable and fast. The channel provided by the banking institutions handling the letters of credit offers a reliable but sluggish alternative.

Fourthly, the European commercial agents provide valuable services in expediting exporting and importing procedures for the frozen beef order. Since their pecuniary interests are tied to the successful completion of the transaction, they have a vested interest in overseeing the shipment from the time it leaves the exporter until it reaches the warehouse of the importer. These same services could be obtained from other independent freight forwarders and customs agents, but by operating on both sides of the Atlantic, the European commercial agents save both

exporter and importer having to keep track of the shipment all the way through.

Finally, the European commercial agent furnishes short-term financing between payment to the exporter in Buenos Aires and receipt of funds from the importer's letter of credit. Foreign currency purchases and remittances are subject to complex regulations in most African states. The commercial agent is well experienced in these matters; transfer of payment abroad is accomplished with little inconvenience to the importer. Transfers are further facilitated by the multiple foreign trade deals being handled by the commercial agent at any given time: shipments of beef to Angola are reportedly coordinated almost on a barter basis by a London-based commercial house also engaged in importing coffee from that country.

CHAPTER FOUR

COMPOSITION OF ARGENTINE MEAT EXPORTS TO WEST AFRICA

I. - General Exports

A glance at the cargo manifest of two ELMA freighters in early 1977 provides a good sample of the variety of products being exported from Argentina to countries on the west coast of Africa. While the predominant share of those exports is made up of commodities other than red meat, frozen meat constitutes the most valuable item. One might argue that the increased red meat trade has provided a catalyst for expanded exports to Africa of a whole range of Argentine agricultural as well as industrial products.

For example, among the products loaded in Buenos Aires on the ship Lago Alumine in April 1977 headed for Matadi there were: salt in blocks (9 tons), dry and salted fish (75 tons), frozen bovine tails (35 tons), frozen bovine liver (10 tons), frozen beef quarters (60 tons), frozen lamb carcasses (25 tons). For Takoradi, 500 tons of cotton; for Luanda, 2,100 tons of dry beans; for Douala, 32 kerosene refrigerators. For Abidjan, 100 kerosene refrigerators and 150 tons of frozen beef quarters.

Earlier in the same year, another ELMA freighter, the Río Belen, sailed for Africa. A partial listing of her cargo includes: for Matadi, 90 tons of frozen fish; for Tema, 600 tons of cotton; for Abidjan, 100 tons of tobacco, 110 tons of white paper, over 300 tons of frozen beef quarters and 5 tons of frozen deboned ham; for Lomé, 500 tons of corn and 77 tons of electric cables; for Douala, 15 tons of tobacco; for Pointe Noire, 10 kerosene refrigerators and 200 tons of frozen beef quarters. The cargo for Monrovia was more varied, but the volumes were smaller: 20 tons of corned beef, 35 tons of canned fruits in syrup, 6 tons of fruit marmalades, 22 tons of canned whole tomatoes and tomato paste, 5 tons of canned peas, 40 tons of wines and bitters, 30 tons of

fresh apples, one-half ton of frozen bovine brains, 3 tons of frozen bovine liver, 40 tons of boneless frozen beef cuts, 30 tons of frozen bone-in beef cuts, 2 tons of sheep offals and 11 tons of lamb carcasses.

A. - Prospects for Non-Meat Products

On the basis of the export items listed above, several conjectures may be made regarding the potential for trade between Argentina and the west coast of Africa. First is the realization that such trade will not be limited to red meat, but that it would likely include agricultural products such as cereal grains, pulses, fruits and vegetables. The abundant agricultural resources of Argentina are well known; some products which are hard to raise in the tropical coast of Africa are grown successfully in Argentina's temperate climate. Argentine wheat, corn, pulses and cotton could find a ready market in Africa. Fresh and processed fruits, vegetables and wines from Argentina could possibly compete with similar products currently being imported from Europe and North Africa.

Second, the rapid growing cities on Africa's west coast may offer a good potential market for fish exports from Argentina; such exports are already taking place on a minor scale. Fish is the predominant source of protein for coastal populations in Africa. Demand for fish has already begun to exceed the domestic African catch, the deficit being made up by purchases from Greek and eastern European fishing fleets. On the other hand, the fisheries industry, hitherto neglected, is currently receiving a great deal of attention and promotion in Argentina. Over the next several years the Argentine government plans to encourage the development of a large scale ocean fishing capability to exploit the marine reserves found along the Atlantic littoral.

Possibilities for exports of manufactured goods are not as promising as for agricultural products. Argentina may, however, be able to supply products and equipment associated with the meat storage and processing industry. Exports of corned beef and kerosene refrigerators are cases in point. Argentina has lagged behind Brazil in developing this

potential line of trade: a Brazilian concern, Cotia, already has a contract to construct two large abattoirs and a nation-wide cold storage network in Nigeria.

The simultaneous expansion of trade in red meat and other lines of products over the past few years has been mutually reinforcing. It is likely that as commercial contacts between Argentina and African countries consolidate, the volume and variety of that trade will also increase.

II. - Meat Exports

Consideration of the composition of meat exports from Argentina to countries on the Atlantic coast of Africa raises a number of questions. These include the species involved; their relative importance; the type of animals slaughtered; whether there are significant differences between meat going to different countries; the degree of processing or transformation; the methods selected for preserving different meats; what specific cuts or parts of the carcass are involved; and their relative qualities and prices.

A. - Mutton and Beef

Almost all meat exports to Africa consist of bovine meat, but a significant contribution is also made by mutton (see Table 4.1). Although minor pork exports have in fact taken place to Ivory Coast, Zaire and Gabon, their importance vis-à-vis beef is negligible. In the first half of 1978, beef accounted for 98 percent of both tonnage and value of meat exports to African countries. This is equivalent to over 34,000 metric tons of beef worth about $28 million FOB Buenos Aires. By contrast, only about 415 tons of mutton worth $447,000 were exported to Africa in the same period, 88 percent of which was for Ivory Coast and the rest about equally divided between Gabon and Liberia. No horsemeat is sold to Africa.

TABLE 4.1

ARGENTINA: MEAT AND MEAT PRODUCTS EXPORTS TO AFRICAN COUNTRIES, BY SPECIES, QUANTITY AND VALUE F.O.B. JANUARY-JUNE 1978

Country	Bovine		Sheep		Pork		Horse		Total[a]		Country
	Metric Tons	FOB US$1000	Metric Tons	FOB US$1000	Metric Tons	FOB US$1000	Metric Tons	FOB US$1000	Metric Tons	FOB US$1000	
Benin	137	97							137	97	Benin
Congo	1,045	670							1,045	670	Congo
Egypt	6,474	5,333	3.3	6.5					6,474	5,340	Egypt
Gabon	848	718	22.9	29.7	10.0	14.0			881	762	Gabon
Ghana	807	640							807	640	Ghana
Ivory Coast	3,124	2,458	366.0	405.0					3,490	2,864	Ivory Coast
Liberia	3,045	2,119	22.6	36.2					3,068	2,155	Liberia
Mozambique	2,860	2,127							2,860	2,127	Mozambique
Nigeria	8,495	7,494							8,495	7,494	Nigeria
S. Africa[b]	10	10							10	10	S. Africa
Togo	745	521							745	521	Togo
Tunisia	5,597	5,079							5,597	5,079	Tunisia
Zaire	1,113	605			151.0	81.6			1,264	687	Zaire
Total	34,300	27,871	414.8	477.4	161.0	95.6			34,876	28,446	Total

SOURCE: Junta Nacional de Carnes. Boletín Semanal N°360/361, August 1978.

[a]Total figures may not add up due to rounding

[b]Specialty beef products: broth, boullion, etc.

The five West African central corridor countries -- Liberia, Ivory Coast, Ghana, Togo, and Benin -- together received 8,247 tons of red meat from Argentina in the first six months of 1978, for a total FOB value of $6.3 million. Of this amount, 95 percent or 7,858 tons were bovine meat and offals at an average value of $743 per metric ton. Mutton, although it represented only 5 percent of tonnage, contributed 7 percent of value, which reflects its higher average price ($1,135/mt). Within this group of countries, Ivory Coast and Liberia stand out as the two principal customers of Argentine meats. The former accounts for 42 percent of weight and 46 percent of value of meat exports to the group; for Liberia these percentages are 37 percent and 32 percent, respectively.

The three principal African meat customers -- Nigeria, Egypt, and Tunisia -- account together for 60 percent of total beef exports to Africa, and 59 percent of all meat exports. None of the three countries imports meat other than beef. Nigeria absorbs 25 percent of total meat exports to Africa and 26 percent of their value; Egypt takes 19 percent of both value and tonnage; Tunisia also accounts for 19 percent of value but only 16 percent by weight. These market shares are based on data for the first six months of 1978 as shown in Table 4.1.

B. - Corned Beef and Offals

In terms of tonnage and value, frozen and chilled beef quarters and cuts represent the principal category of bovine meat exported to West African countries: over 95 percent of total beef exports to Ivory Coast in the first six months of 1978 consisted of frozen, chilled, or manufacturing beef; bovine offals contributed 3 percent and corned beef the remaining 2 percent. Corned beef also contributed 2 percent of beef exports to Liberia during the same period. Ghana, Togo and Benin received no offals or corned beef in early 1978 (see Table 4.2).

Nigeria, on the other hand received 11 percent of its bovine meat from Argentina as canned corned beef, which in value terms represents a larger share of those imports, 18 percent. Offals make negligible contribution to bovine meat exports to Liberia and Nigeria, but they constitute fully 93 percent of those to Zaire. The remaining 7 percent is corned

TABLE 4.2

COMPOSITION OF ARGENTINE MEAT EXPORTS TO AFRICAN COUNTRIES
January-June 1978

	Kilograms	US$ FOB
	BENIN	
Frozen beef	47,264	37,811
Manufacturing beef	89,847	59,299
Total beef	137,111	97,110
Total meats	137,111	97,110
	CONGO	
Frozen beef	1,004,204	644,061
Offals	41,000	26,170
Total beef	1,045,204	670,231
Total meats	1,045,204	670,231
	EGYPT	
Frozen beef	5,571,323	4,585,147
Manufacturing beef	405,283	350,632
Offals	317,727	123,114
Corned beef	179,520	274,450
Total beef	6,473,853	5,333,343
Total mutton	3,256	6,525
Total meats	6,477,109	5,339,868
	GABON	
Chilled beef	139,357	167,229
Frozen beef	277,051	258,522
Manufacturing beef	315,105	220,627
Offals (bovine)	116,776	72,049
Total beef	848,289	718,427
Total mutton	22,918	29,738
Total pork	10,016	13,981
Total meats	881,223	762,146

TABLE 4.2

COMPOSITION OF ARGENTINE MEAT EXPORTS TO AFRICAN COUNTRIES (continued)

	Kilograms	US$ FOB
	GHANA	
Frozen beef	509,984	438,337
Manufacturing beef	297,214	202,106
Total beef	807,198	640,443
Total meats	807,198	640,443
	IVORY COAST	
Chilled beef	48,171	56,774
Frozen beef	1,921,577	1,563,622
Manufacturing beef	1,020,024	699,232
Offals	84,627	55,695
Corned beef	49,891	83,119
Total beef	3,124,290	2,458,442
Total mutton	365,938	405,111
Total meats	3,490,228	2,863,553
	LIBERIA	
Frozen beef	988,322	711,986
Manufacturing beef	2,003,949	1,322,734
Offals (bovine)	2,550	2,099
Corned beef	50,304	81,800
Total beef	3,045,125	2,118,619
Total mutton	22,604	36,198
Total meats	3,067,729	2,154,817
	MOZAMBIQUE	
Frozen beef	729,122	589,118
Manufacturing beef	2,131,210	1,538,276
Total beef	2,860,332	2,127,394
Total meats	2,860,332	2,127,394

TABLE 4.2

COMPOSITION OF ARGENTINE MEAT EXPORTS TO AFRICAN COUNTRIES (continued)

	Kilograms	US$ FOB
	NIGERIA	
Frozen beef	1,160,914	968,900
Manufacturing beef	6,416,169	5,172,708
Offals	5,398	3,239
Corned beef	912,152	1,349,456
Total beef	8,494,633	7,494,303
Total meats	8,494,633	7,494,303
	TOGO	
Frozen beef	481,284	336,899
Manufacturing beef	263,414	184,390
Total beef	744,698	521,289
Total meats	744,698	521,289
	TUNISIA	
Frozen beef	5,055,773	4,715,743
Manufacturing beef	507,104	352,021
Offals	33,881	11,480
Total beef	5,596,758	5,079,244
Total meats	5,596,758	5,079,244
	REP. SOUTH AFRICA	
Specialty products-beef	10,015	10,029
Total beef	10,015	10,029
Total meats	10,015	10,029

TABLE 4.2

COMPOSITION OF ARGENTINE MEAT EXPORTS TO AFRICAN COUNTRIES (continued)

	Kilograms	US$ FOB
	ZAIRE	
Offals	1,031,708	485,447
Corned beef	81,600	120,000
Total beef	1,113,308	605,447
Total pork	151,055	81,586
Total meats	1,264,363	687,033

SOURCE: JNC, Boletín Semanal de Informaciones Sobre Ganados, Carnes, y Subproductos. Nos. 360, 361, August 1978.

beef and accounts for 20 percent of the value of those exports. Offals include an assortment of items, the main ones being beef livers and tails, but beef brains, tongue, heart, kidneys, bible, tripe, lungs and ears are also found in shipments to Africa.

While Africa as a whole received 14 percent of the total beef tonnage exported by Argentina between January and June 1978, in terms of value its share of the Argentine beef market only amounted to 9 percent. By comparison, beef exports to the European Community, representing 40 percent in weight, contributed 47 percent of the total value of Argentine bovine meat exports. The contrast would be even more marked had other than bovine meats been included. This apparent imbalance in the African share of the market reflects different product combinations and lower quality of meats as well as price discrimination policies by Argentine exporters.

C. - Chilled Beef

In the period under consideration (early 1978), chilled beef, the highest-value category of beef, was exported to Africa but only in minor quantities: 48 tons to Ivory Coast at an average price of US $1,180 and 139 tons to Gabon at US $1,200 per metric ton.

D. - Manufacturing Beef

At the other end of the price spectrum is manufacturing-quality beef. As its designation indicates, it is classified as being suitable for processing rather than being consumed directly at the table. Carcasses from culled cows and older bulls are the usual source of manufacturing quality beef. This meat, lean and tough, is usually processed into corned beef. When exported, manufacturing-quality beef is shipped as frozen carcasses or quarters, but not in beef cuts. This category of beef accounts for a substantial share of beef exports to African countries; despite its classification, it is not likely that manufacturing beef is being processed in Africa, but rather is sold in the general market for direct consumption. One-third of the 3,124 metric tons of beef exported to Ivory

Coast in the first half of 1978 was labeled manufacturing quality and was priced at an average of US $685/mt. A similar proportion is found for Togo and Ghana. For Liberia, however, two-thirds of the 3,045 metric tons of beef were manufacturing grade; Benin had the same proportion, though the volume is much smaller. Three-quarters of the 8,495 mt of beef exports to the largest West African market, Nigeria, were also manufacturing grade. Overall, more than 60 percent of total beef exports to West Africa consists of manufacturing beef.

E. - Beef Quarters and Cuts

Table quality beef constitutes the remaining category of frozen beef being exported to Africa; within this group one may distinguish between beef quarters and beef cuts. As would be expected, the greater part of table beef is shipped in quarters, but a significant amount of beef cuts is also seen: cuts accounted for 110 out of 988 tons of frozen table beef sent to Liberia. Similarly, 334 tons of beef cuts were shipped to Ivory Coast, compared to 1,626 tons in quarters. Neither Togo nor Benin bought beef cuts, only quarters. Surprisingly, Ghana bought no beef quarters at all in the first half of 1978; beef cuts accounted for the entire 510 tons of frozen table beef. Nigeria also purchased an overwhelming proportion of beef cuts: 1,034 tons in contrast with only 127 tons in beef quarters.

Overall, in the first half of 1978, over 5,000 tons of table beef were exported to West Africa, of which 2,000 or 40 percent, were beef cuts; the remaining 3,000 tons were in beef quarters. Ghana and Nigeria received over three-quarters of the beef cuts; the five central corridor countries, however, bought only about 24 percent of their 4,000 tons of table beef in cuts.

African countries as a group have become the almost exclusive outlet for beef quarters from Argentina: 92 percent of beef quarters shipped in the first half of 1978 were sent to Africa; mostly to Egypt, Tunisia, Angola, Ivory Coast and Congo. This reflects the trend followed by Argentina over the past decade of moving progressively away from the

exportation of frozen quarters toward products containing greater value added such as beef cuts, cooked/frozen beef, and canned corned beef. This trend has been reinforced by the stricter sanitary regulations concerning hoof-and-mouth disease adopted by the European Economic Community, as well as by the fact that the United States does permit the importation of processed meats (cooked/frozen, corned beef) from countries affected by hoof-and-mouth.

TABLE 4.3

QUARTERLY EXPORTS OF REFRIGERATED BEEF TO CENTRAL WEST AFRICAN COUNTRIES BY COUNTRY OF DESTINATION
1975-I to 1978-IV
(metric tons shipping weight)

Quarter	Ivory Coast	Ghana	Liberia	Togo	African Total	World Total
1975-I	-	-	-	-	-	16,155
II	-	-	3	-	3	19,810
III	-	-	11	-	11	21,744
IV	1,105	-	14	-	1,119	21,366
1976-I	1,662	-	59	-	4,802	36,257
II	2,090	-	5	-	5,335	57,965
III	4,371	905	1	-	11,225	61,172
IV	2,532	791	94	-	10,382	68,543
1977-I	185	5	-	1,983[a]	2,873	50,996
II	1,296	304	63	2,269[a]	14,983	73,235
III	948	309	1,488	583[a]	15,446	73,769
IV	299	-	526	1,737[a]	13,236	80,133
1978-I	1,277	-	1,191	744	17,781	62,130
II	1,763	807	1,801	-	15,147	86,148

SOURCE: JNC, Síntesis Estadística Trimestral, II, 1978.

[a]1977 exports to Togo are probably erroneous. It seems likely that Togo was credited for shipments going in fact to Ivory Coast.

TABLE 4.4

EVOLUTION OF ARGENTINE MEAT EXPORTS TO LIBERIA, 1969-1978
(FOB value in thousands of US dollars)

Product:	1978	1977	1976	1975	1974[a]	1973[a]	1972	1971	1970	1969
Beef:										
Quarters	576	270	101	-			-	7.2	-	2.9
Cuts	136	172	19	49			-	11.2	-	9.6
Manufacturing	1,323	1,304	-	2			-	1.3	-	-
Cooked/frozen	-	-	-	-			-	-	-	-
Corned beef	82	131	31	55			-	1.8	4.5	2.1
Broth	-	-	-	-			-	-	-	-
Offals	2	9	-	0.4			-	0.3	-	0.1
Other preps.	-	-	-	-			1.4	1.6	4.8	3.4
Total beef	2,119	1,885	152	107			1.4	23.4	9.3	18.1
Total mutton	36	58	15	11			-	1.5	-	0.4
Total pig	-	1	-	-			-	-	-	0.6
Total meats	2,155	1,944	167	118			1.4	24.9	9.3	19.1
Percent of Argentine Exports	0.6	0.3	0.0	0.0			0.0	0.0	0.0	0.0

SOURCE: JNC Statistical Computing Center.

[a]Data not available.

TABLE 4.5

EVOLUTION OF ARGENTINE MEAT EXPORTS TO LIBERIA, 1969-1978
(metric tons)

Product:	1978	1977	1976	1975	1974[a]	1973[a]	1972	1971	1970	1969
Beef:										
Quarters	878	362	148	-			-	7.4	-	4.6
Cuts	110	99	11	25			-	7.6	-	8.3
Manufacturing	2,004	1,617	-	3			-	1.4	-	-
Cooked/frozen	-	-	-	-			-	-	-	-
Corned beef	50	77	21	33			-	1.3	4.2	1.9
Broth	-	-	-	-			-	-	-	-
Offals	3	11	-	0.5			-	0.5	-	0.5
Other preps.	-	-	-	-			1.2	1.2	5.1	4.1
Total beef	3,045	2,165	180	60.5			1.2	19.4	9.3	19.4
Total mutton	23	41	11	7			-	2.9	-	0.8
Total pork	-	0.2	-	-			-	-	-	1.0
Total meats	3,068	2,206	191	67.5			1.2	22.3	9.3	21.2
Percent of Argentine Exports	1.1	0.4	0.0	0.0			0.0	0.0	0.0	0.0

SOURCE: JNC Statistical Computing Center.

[a]Data not available.

TABLE 4.6

EVOLUTION OF ARGENTINE MEAT EXPORTS TO IVORY COAST, 1969-1978
(metric tons)

Product:	1978	1977	1976	1975	1974[a]	1973[a]	1972	1971	1970	1969
Beef:										
Quarters	1,626	723	5,057	-			-	-	-	-
Cuts	344	186	177	15			-	-	-	-
Manufacturing	1,020	1,819	5,421	1,090			-	-	-	-
Cooked/frozen	-	-	-	-			-	-	-	-
Corned beef	50	-	6	-			-	-	-	-
Broth	-	-	-	-			-	-	-	-
Offals	85	43	72	-			-	-	-	-
Other preps.	-	-	-	-			-	-	-	-
Total beef	3,125	2,771	10,734	1,105			-	-	-	-
Total mutton	366	343	289	10			-	-	-	-
Total pork	-	23	11	-			-	-	-	-
Total meats	3,491	3,137	11,033	1,115			-	-	-	-
Percent of Argentine Exports	1.2	0.6	2.4	0.5			-	-	-	-

SOURCE: JNC Statistical Computing Center.

[a]Data not available.

TABLE 4.7

EVOLUTION OF ARGENTINE MEAT EXPORTS TO IVORY COAST, 1969-1978
(FOB value in thousands of US dollars)

Product:	1978	1977	1976	1975	1974[a]	1973[a]	1972	1971	1970	1969
Beef:										
Quarters	1,105	591	2,351	-			-	-	-	-
Cuts	516	250	210	16			-	-	-	-
Manufacturing	699	1,280	2,328	469			-	-	-	-
Cooked/frozen	-	-	-	-			-	-	-	-
Corned beef	83	-	9	-			-	-	-	-
Broth	-	-	-	-			-	-	-	-
Offals	56	26	47	-			-	-	-	-
Other preps.	-	-	-	-			-	-	-	-
Total beef	2,459	2,147	4,946	485			-	-	-	-
Total mutton	405	374	193	6			-	-	-	-
Total pig	-	36	18	-			-	-	-	-
Total meats	2,864	2,557	5,157	491			-	-	-	-
Percent of Argentine Exports	0.8	0.4	1.0	0.2			-	-	-	-

SOURCE: JNC Statistical Computing Center.

[a]Data not available.

TABLE 4.8

EVOLUTION OF ARGENTINE MEAT EXPORTS TO GHANA, 1969-1978
(FOB value in thousands of US dollars)

Product:	1978	1977	1976	1975	1974[a]	1973[a]	1972	1971	1970	1969
Beef:										
Quarters	-	265.7	88.2	-			-	-	-	-
Cuts	438.3	14.0	238.5	-			-	-	-	-
Manufacturing	202.1	264.1	602.2	-			-	-	-	-
Cooked/frozen	-	-	-	-			-	-	-	-
Corned beef	-	-	-	-			-	4.0	324.6	190.6
Broth	-	-	-	-			-	-	-	-
Offals	-	-	-	-			-	-	-	-
Other preps.	-	-	-	-			-	-	-	0.3
Total beef	640.4	543.8	928.9	-			-	4.0	324.6	190.9
Total mutton	-	-	-	-			-	-	-	0.2
Total pork	-	-	-	-			-	-	-	-
Total meats	640.4	543.8	928.9	-			-	4.0	324.6	191.1
Percent of Argentine Exports	0.2	0.1	0.2	-			-	0.0	0.1	0.0

SOURCE: JNC Statistical Computing Center.

[a]Data not available.

TABLE 4.9

EVOLUTION OF ARGENTINE MEAT EXPORTS TO GHANA, 1969-1978
(metric tons)

Product:	1978	1977	1976	1975	1974[a]	1973[a]	1972	1971	1970	1969
Beef:										
Quarters	-	247.2	117.6	-			-	-	-	-
Cuts	510.0	4.8	306.0	-			-	-	-	-
Manufacturing	297.2	366.0	1,272.0	-			-	-	-	-
Cooked/frozen	-	-	-	-			-	-	-	-
Corned beef	-	-	-	-			-	4.1	374.7	226.4
Broth	-	-	-	-			-	-	-	-
Offals	-	-	-	-			-	-	-	-
Other preps.	-	-	-	-			-	-	-	0.3
Total beef	807.2	618.0	1,695.6	-			-	4.1	374.7	226.7
Total mutton	-	-	-	-			-	-	-	0.3
Total pork	-	-	-	-			-	-	-	-
Total meats	807.2	618.0	1,695.6	-			-	4.1	374.7	227.0
Percent of Argentine Exports	0.3	0.1	0.4					0.0	0.0	0.0

SOURCE: JNC Statistical Computing Center.

[a]Data not available.

TABLE 4.10

EVOLUTION OF ARGENTINE MEAT EXPORTS TO TOGO, 1969-1978
(FCE value in thousands of US dollars)

Product:	1978	1977	1976	1975	1974[a]	1973[a]	1972	1971	1970	1969
Beef:										
Quarters	336.9	3,630.3	-	-			-	-	-	-
Cuts	-	239.8	-	-			-	-	-	-
Manufacturing	184.4	1,454.6	-	-			-	-	-	-
Cooked/frozen	-	-	-	-			-	-	-	-
Corned beef	-	54.6	-	-			-	-	-	-
Broth	-	-	-	-			-	-	-	-
Offals	-	24.0	-	-			-	-	-	-
Other preps.	-	-	-	-			-	-	-	-
Total beef	521.3	5,403.3	-	-			-	-	-	-
Total mutton	-	17.2	-	-			-	-	-	-
Total pork	-	-	-	-			-	-	-	-
Total meats	521.3	5,420.5	-	-			-	-	-	-
Percent of Argentine Exports	0.1	0.9	-	-			-	-	-	-

SOURCE: JNC Statistical Computing Center.

[a]Data not available.

TABLE 4.11

EVOLUTION OF ARGENTINE MEAT EXPORTS TO TOGO, 1969-1978
(metric tons)

Product:	1978	1977	1976	1975	1974[a]	1973[a]	1972	1971	1970	1969
Beef:										
Quarters	481.3	4,569.4	-	-			-	-	-	-
Cuts	-	184.4	-	-			-	-	-	-
Manufacturing	263.4	1,817.4	-	-			-	-	-	-
Cooked/frozen	-	-	-	-			-	-	-	-
Corned beef	-	36.7	-	-			-	-	-	-
Broth	-	-	-	-			-	-	-	-
Offals	-	50.5	-	-			-	-	-	-
Other preps.	-	-	-	-			-	-	-	-
Total beef	744.7	6,658.4	-	-			-	-	-	-
Total mutton	-	20.0	-	-			-	-	-	-
Total pork	-	-	-	-			-	-	-	-
Total meats	744.7	6,678.4	-	-			-	-	-	-
Percent of Argentine Exports	0.3	1.3	-	-			-	-	-	-

SOURCE: JNC Statistical Computing Center.

[a]Data not available.

TABLE 4.12

EVOLUTION OF ARGENTINE MEAT EXPORTS TO BENIN, 1969-1978
(FOB value in thousands of US dollars)

Product:	1978	1977	1976	1975	1974[a]	1973[a]	1972	1971	1970	1969
Beef:										
Quarters	37.8	-	-	-			-	-	-	-
Cuts	-	-	-	-			-	-	-	-
Manufacturing	59.3	-	-	-			-	-	-	-
Cooked/frozen	-	-	-	-			-	-	-	-
Corned beef	-	6.1	-	-			-	-	-	-
Broth	-	-	-	-			-	-	-	-
Offals	-	-	-	-			-	-	-	-
Other preps.	-	-	-	-			-	-	-	-
Total beef	97.1	6.1	-	-			-	-	-	-
Total mutton	-	-	-	-			-	-	-	-
Total pork	-	-	-	-			-	-	-	-
Total meats	97.1	6.1	-	-			-	-	-	-
Percent of Argentine Exports	0.0	0.0	-	-			-	-	-	-

SOURCE: JNC Statistical Computing Center.

[a]Data not available.

TABLE 4.13

EVOLUTION OF ARGENTINE MEAT EXPORTS TO BENIN, 1969-1978
(metric tons)

Product:	1978	1977	1976	1975	1974[a]	1973[a]	1972	1971	1970	1969
Beef:										
Quarters	47.3	-	-	-			-	-	-	-
Cuts	-	-	-	-			-	-	-	-
Manufacturing	89.8	-	-	-			-	-	-	-
Cooked/frozen	-	-	-	-			-	-	-	-
Corned beef	-	4.1	-	-			-	-	-	-
Broth	-	-	-	-			-	-	-	-
Offals	-	-	-	-			-	-	-	-
Other preps.	-	-	-	-			-	-	-	-
Total beef	137.1	4.1	-	-			-	-	-	-
Total mutton	-	-	-	-			-	-	-	-
Total pork	-	-	-	-			-	-	-	-
Total meats	137.1	4.1	-	-			-	-	-	-
Percent of Argentine Exports	0.0	0.0	-	-			-	-	-	-

SOURCE: JNC Statistical Computing Center.

[a]Data not available.

TABLE 4.14

EVOLUTION OF ARGENTINE MEAT EXPORTS TO NIGERIA, 1969-1978
(FOB value in thousands of US dollars)

Product:	1978	1977	1976	1975	1974[a]	1973[a]	1972	1971	1970	1969
Beef:										
Quarters	88.7	536.3	-	-			-	-	-	-
Cuts	880.3	1,451.2	-	-			2.8	1.9	1.4	-
Manufacturing	5,172.7	6,419.1	-	-			-	-	-	-
Cooked/Frozen	-	-	-	-			-	-	-	-
Croned Beef	1,349.5	108.1	522.8	320.3			-	-	-	-
Broth	-	-	-	-			-	-	-	-
Offals	3.2	168.5	-	-			-	-	-	-
Other preps.	-	-	-	-			-	-	-	-
Total beef	7,494.4	8,683.2	522.8	320.3			2.8	1.9	1.4	-
Total mutton	-	12.8	-	-			-	-	-	-
Total pork	-	-	-	-			-	-	-	-
Total meats	7,494.4	8,696.0	522.8	320.3			2.8	1.9	1.4	-
Percent of Argentine Exports	2.1	1.4	0.1	0.1			0.0	0.0	0.0	-

SOURCE: JNC Statistical Computing Center.

[a]Data not available.

TABLE 4.15

EVOLUTION OF ARGENTINE MEAT EXPORTS TO NIGERIA, 1969-1978
(metric tons)

Product:	1978	1977	1976	1975	1974[a]	1973[a]	1972	1971	1970	1969
Beef:										
Quarters	126.7	726.7	-	-			-	-	-	-
Cuts	1,034.2	1,318.0	-	-			0.8	0.7	1.1	-
Manufacturing	6,416.1	6,646.5	-	-			-	-	-	-
Cooked/Frozen	-	-	-	-			-	-	-	-
Corned Beef	912.2	66.0	364.0	223.8			-	-	-	-
Broth	-	-	-	-			-	-	-	-
Offals	5.4	292.0	-	-			-	-	-	-
Other preps.	-	-	-	-			-	-	-	-
Total beef	8,494.6	9,049.2	364.0	223.8			0.8	0.7	1.1	-
Total mutton	-	10.4	-	-			-	-	-	-
Total pork	-	-	-	-			-	-	-	-
Total meats	8,494.6	9,059.6	364.0	223.8			0.8	0.7	1.1	-
Percent of Argentine Exports	3.0	1.8	0.1	0.1			0.0	0.0	0.0	-

SOURCE: JNC Statistical Computing Center.

[a]Data not available.

TABLE 4.16

ARGENTINE MEAT EXPORTS TO WEST AFRICAN CENTRAL CORRIDOR COUNTRIES, BY SPECIES, JANUARY-JUNE 1978.
(metric tons)

Country	All Meats				Beef				Sheepmeat			
	Quantity		Value		Quantity		Value		Quantity		Value	
	Tons	%	US$1000	%	Tons	%	US$1000	%	Tons	%	US$1000	%
Benin	137	1.7	97	1.5	137	1.7	97	1.7				
Ghana	807	9.8	640	10.2	807	10.3	640	11.0				
Ivory Coast	3,490	42.3	2,864	45.6	3,124	39.8	2,458	42.0	36.6	94.2	405	91.8
Liberia	3,068	37.2	2,155	34.3	3,045	38.7	2,119	36.3	22.6	5.8	36.2	8.2
Togo	745	9.0	521	8.3	745	9.4	521	8.9				
Total	8,247	100	6,277	100	7,858	100	5,835	100	388.6	100	441.2	100

SOURCE: JNC Statistical Computing Center.

TABLE 4.17

COMPOSITION OF ARGENTINE MEAT EXPORTS TO THE EUROPEAN ECONOMIC COMMUNITY
JANUARY-JUNE 1978

Item	Kilograms	US $F.O.B.
Chilled beef	6,968,442	16,267,116
Frozen beef	31,625,962	50,069,917
Manufacturing beef	8,078,216	7,503,439
Cooked-frozen beef	7,272,827	14,753,168
Offals	22,626,430	19,624,392
Specialty products	2,389,173	5,833,333
Salted beef	49,829	40,880
Corned beef	20,662,867	33,790,790
Total beef	99,668,746	147,883,035
Total mutton	8,224,098	12,490,812
Total pork	179,287	200,060
Total horsemeat	10,287,472	14,480,419
Total meats	118,359,603	175,054,326

SOURCE: JNC Statistical Computing Center.

CHAPTER FIVE

LIVESTOCK PRODUCTION IN ARGENTINA

I. - The Agricultural Sector

Argentina is blessed with exceptionally favorable conditions for livestock production. Its territory stretches in a long triangle from the Tropic of Capricorn to the 50th parallel south, completely within the temperate zone of South America. Two main features dominate the topography of the country: the Andes mountain chain along the western half, and the Pampas between the Andes and the Atlantic Ocean. Pampa was originally a Quechua word meaning grassland without trees, and it accurately describes the landscape. Rainfall is very plentiful along the Atlantic coastal zone, but it diminishes rapidly toward the interior. Agricultural activities, both livestock and crops, are concentrated in the wet Pampa, an area within a 300-kilometer radius of Buenos Aires.

Agricultural activities contributed 13 percent of the 1977 Argentine gross domestic product, compared to 37 percent by the manufacturing sector and 18 percent by commerce (Economic Ministry, 1978, p. 38). This represents a slight decline from the 16.4 percent of the 1960-64 period (Fundacion Banco de Boston, 1977, p. 145). About half -- 45 percent -- of agricultural production consists of livestock activities, among which cattle raising is the most important (57 percent) followed by poultry (14 percent) and sheep (19 percent). (See Table 5.1.)

Livestock products accounted for a quarter of the total value of Argentine exports in 1977. Their relative importance is subject to great variation, especially in the last decade when it declined from a high of 50 percent in 1972 to only 18 percent in 1975. Wool and dairy products make up a significant share of these exports, but the bulk of them (80 percent) consists of meats and related by-products (JNC, Síntesis Estadística, 1977, p. 183).

TABLE 5.1

ARGENTINA: CONTRIBUTION OF LIVESTOCK TO SELECTED ECONOMIC ACTIVITIES, 1965 - 1977

Year	Agriculture % GDP	Livestock % Agriculture	Cattle % Livestock	Sheep % Livestock	Poultry % Livestock	Livestock Products % Exports
1965	16.0	-	-	-	-	38
1966	15.3	-	-	-	-	44
1967	15.5	-	-	-	-	46
1968	14.1	-	-	-	-	43
1969	13.7	-	-	-	-	44
1970	13.7	52	63	6	13	39
1971	12.5	52	60	6	14	36
1972	11.1	49	63	11	10	50
1973	12.2	44	60	12	11	37
1974	12.2	42	54	9	16	19
1975	11.9	39	51	12	16	18
1976	12.7	41	53	10	14	24
1977	13.0	45	57	9	14	24

SOURCES: Orientación Pecuaria, 1978.
JNC, Síntesis Estadística, 1977.

There are, moreover, many linkages between the livestock subsector and the rest of the Argentine economy. The meat packing industry, for example, was the cornerstone of industrial development in Argentina and today constitutes one of the largest industrial groups in the nation. Cattlemen and meat processors have been among the most influential groups in the political history of the country. Meats comprise a large portion of the family food budget: beef alone accounts for 15 percent of the consumption basket used to compute the consumer price index, and within the food category it represents 25 percent. Although these are figures based on a 1960 survey, it is thought that the current shares have diminished only slightly (SRA, 1973).

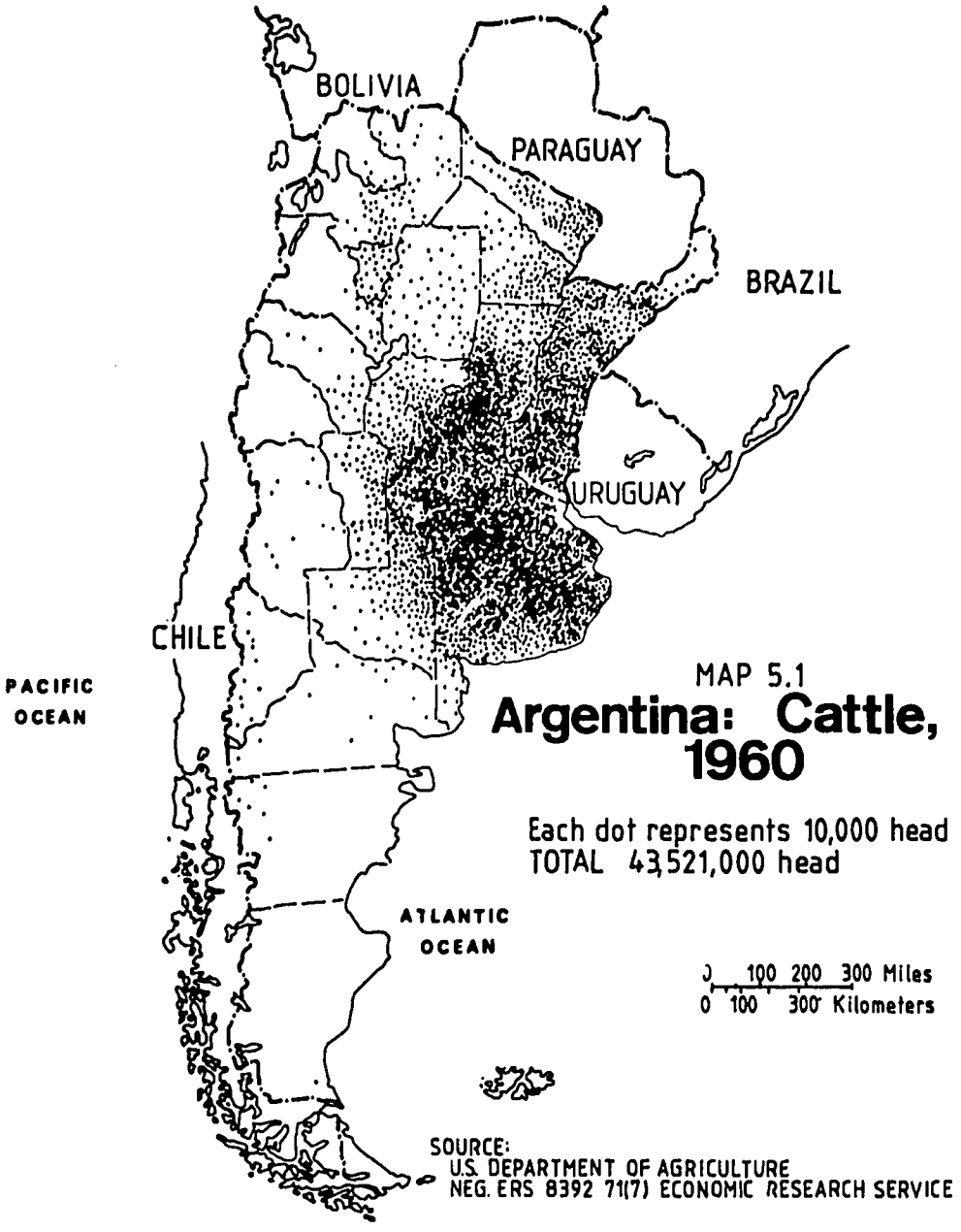
II. - Herd Size and Distribution

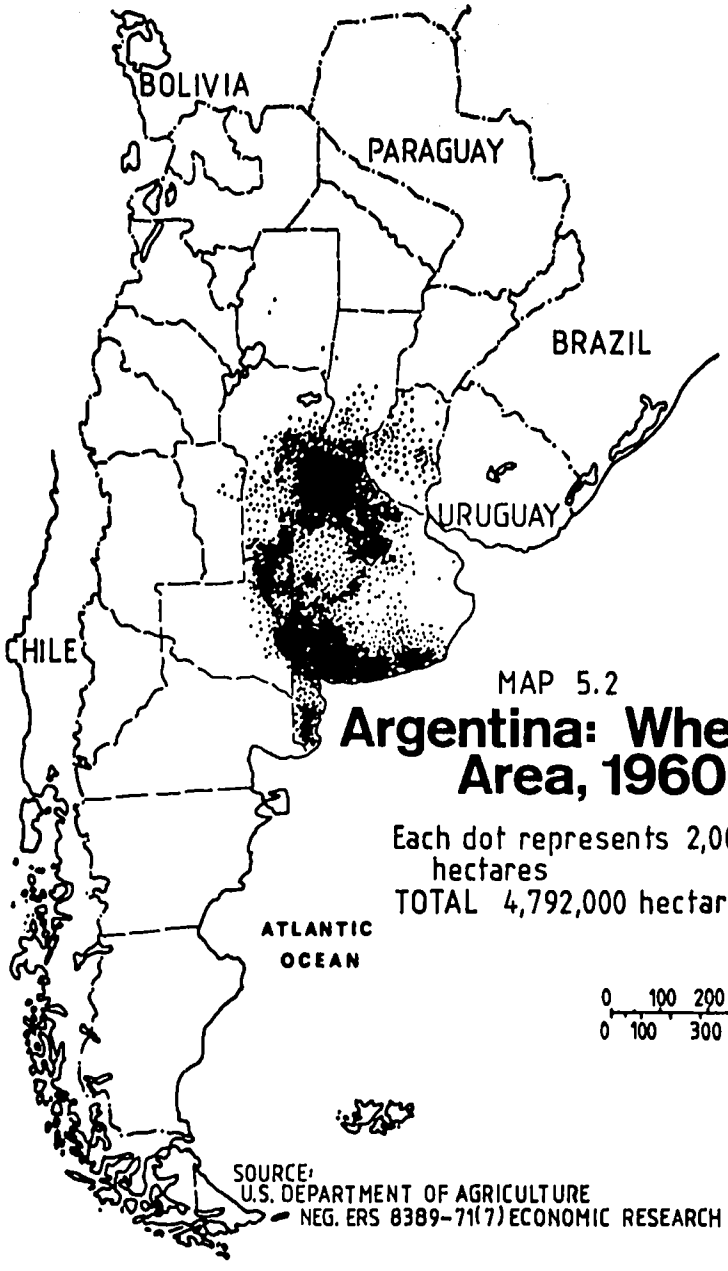
A. - Cattle

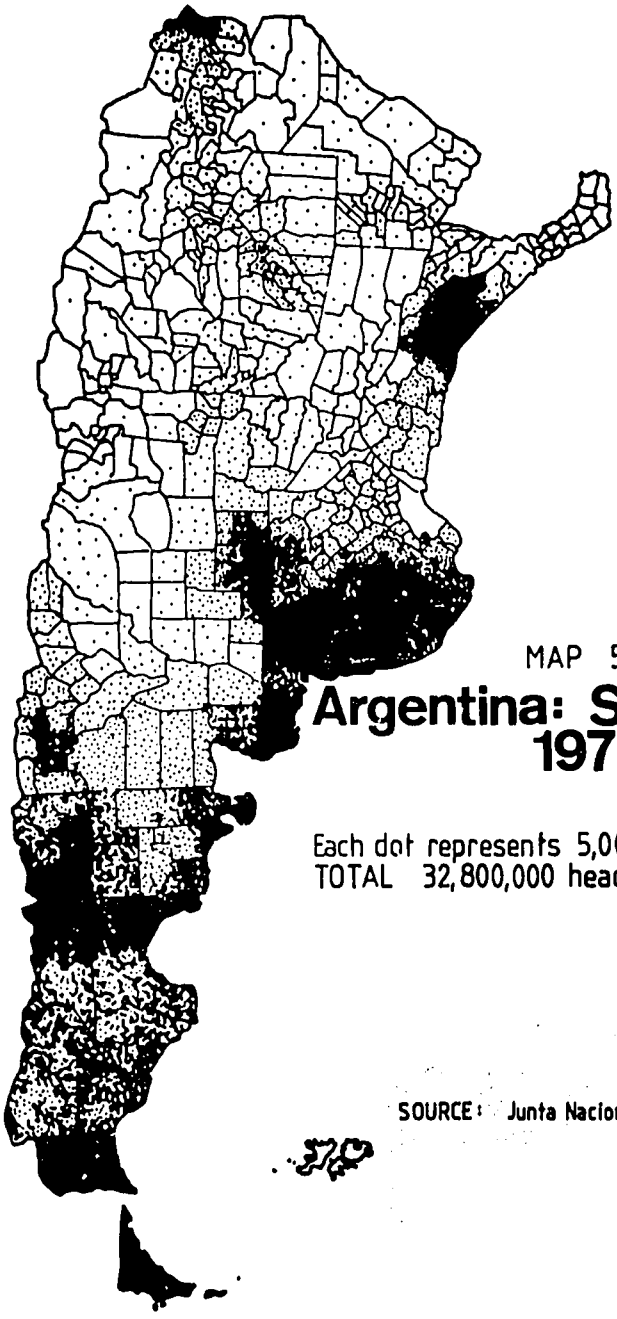
The Argentine cattle herd in 1977 was estimated at 59.6 million head or more than two head of cattle per person for a human population of 26 million. Between 1969 and 1977 the cattle herd grew at a compound annual rate of 2.7 percent. This represents a considerable improvement over the previous two decades. In the twenty-two years between 1947 and 1969 the cattle herd grew from 41.0 million to 48.3 million, equivalent to merely 0.75 percent annually. The cattle sector thus reflects the general pattern of growth of the Argentina economy since the Second World War.

The distribution of the cattle population throughout the country is illustrated in Map 5.1. This map was drafted on the basis of the 1960 Agricultural Census, but it reflects as well the current distribution. Two additional maps are included to contrast the location of cattle activity with those of wheat production (Map 5.2), and the sheep population (Map 5.3).

Eighty percent of the cattle are concentrated in the five Pampa provinces: Buenos Aires, Córdoba, Santa Fe, Entre Rios, and La Pampa.


BOLIVIA
PARAGUAY
BRAZIL
URUGUAY
CHILE
PACIFIC OCEAN
ATLANTIC OCEAN
MAP 5.1
Argentina: Cattle, 1960
Each dot represents 10,000 head
TOTAL 43,521,000 head
0 100 200 300 Miles
0 100 300 Kilometers
SOURCE:
U.S. DEPARTMENT OF AGRICULTURE
NEG. ERS 8392 71(7) ECONOMIC RESEARCH SERVICE


BOLIVIA
PARAGUAY
BRAZIL
URUGUAY
CHILE
PACIFIC OCEAN
ATLANTIC OCEAN
MAP 5.2
Argentina: Wheat Area, 1960
Each dot represents 2,000 hectares
TOTAL 4,792,000 hectares
0 100 200 300 Miles
0 100 300 Kilometers
SOURCE:
U.S. DEPARTMENT OF AGRICULTURE
NEG. ERS 8389-71(7) ECONOMIC RESEARCH SERVICE



MAP 5.3

Argentina: Sheep, 1977

Each dot represents 5,000 head
TOTAL 32,800,000 head

SOURCE: Junta Nacional de Carnes

Corrientes province, in the northeast, contributes an additional 7 percent. The rest of the herd (13 percent) is dispersed through the remaining 15 provinces. The regional distribution of cattle has remained relatively stable over the decades. Almost no cattle are raised in Patagonia zone, i.e., the provinces south of the Rio Colorado or roughly the 38th parallel. Despite a marked seasonality in pasture quality and availability, the northern and northwestern provinces promise potential for cattle breeding, but so far they contain only one-tenth of the national herd.

According to a survey made in June 1977, the sex and age composition of the national cattle herd was broken down into these categories in percentage terms (JNC, Estadística Trimestral, 2nd Trimester 1978:

Cows	38.5%
Heifers	16.1%
Total females	54.6%
Males - 1 year	13.1%
Males - 2 years	9.4%
Older bulls & oxen	3.1%
Total Males	25.6%
Calves (male & female)	19.8%

European breeds, particularly Aberdeen Angus, Hereford, both polled and horned, and Shorthorn predominate among Argentine beef cattle, but in the northern provinces where the climate approaches semitropical conditions, zebu cattle breeds and crosses (Brahman, Santa Getrudis, Nelore) are widely represented.

The dairy industry also contributes substantially to livestock production in Argentina. There are an estimated 3.5 million milk cows, almost exclusively Holstein-Friesian or graded. Dairying is concentrated in the pampa provinces around Buenos Aires, and it takes place in close association with production of forage crops such as alfalfa, clover and improved grasses.

Beef cattle production in Argentina does not use some of the intensive techniques associated with the cattle industries of developed countries. Animals are entirely range fed; that is, they are kept on pasture throughout their lives. There are no feedlots to finish cattle with high energy rations under confinement. Satisfactory nutrition has been accomplished through the introduction of selected grasses and other improved forage crops and through the widespread use of fertilizer.

Some regional stratification in beef cattle production is observed. Zones with lower agricultural potential specialize in breeding while the richer wet pampa region concentrates in growing out the young animals supplied by the breeding areas. However, the degree of such stratification has diminished over the past twenty years, according to industry observers. Breeders have increasingly opted to raise their cattle until they are ready for slaughter by incorporating forage production and storage activities as part of the enterprise. Growing out (invernada) in the wet pampa zone continues but mostly as a seasonal activity to supply high quality animals to the market during the lean months. Three basic types of beef cattle enterprise can therefore be found: cow-calf operations, growing out and combinations of the two. Dairy cattle production, of course, has its own peculiar type of organization.

B. - Sheep

In contrast to developments in cattle, the Argentine sheep herd has declined in absolute terms over the past three decades. In 1977, the last year for which figures are available, the sheep population was estimated at 32.8 million head. This corresponds to a decline of 11.5 million since 1969, when the census showed the population to be 44.3 million. The decline continued a negative trend existing since 1947, when the sheep herd was 51.2 million. Behind this decline lies the worldwide contraction in demand for wool that followed the Second World War as a result of competition from synthetic fibers. It is not yet evident whether the increased appeal of natural fibers during the late 1970s (in the aftermath of the increase in oil prices) will result in improved prospects for sheep production in Argentina.

Sheep production is concentrated in the frigid Patagonia zone and in the southern section of Buenos Aires Province (see Map 5.3). The latter, however, has seen its importance decline in the last two decades, from 19 million head (39 percent of total) in 1960, to 9.6 million (29 percent) in 1977. Numbers of head in Patagonia have been maintained at about 13 million, but its share of the national herd increased from 28 percent in 1960 to 36.5 percent in 1974.

C. - Swine

The number of swine in Argentina has remained fairly stable at about 4 million head during the last three decades. Areas suitable for pig production need also to be favorable for raising crops, especially sorghum and maize, and in relative proximity to large urban centers. Over three-quarters of total pig production takes place in three provinces near the federal capital: Buenos Aires, 33 percent; Cordoba 25 percent; and Santa Fe, 18 percent.

D. - Horses

Horses are primarily raised as work animals in Argentina. A small quantity of horsemeat is consumed domestically and exported to Europe; racing and other recreational uses of horses also take place. Most horses, however, are employed by cowboys in cattle ranch operations. The observed decline in horse numbers in the last two decades, from 4.2 million in 1960 to 2.7 million in 1977, reflects in part their progressive displacement by alternative means of transportation (see Table 5.2).

III. - Offtake and Herd Dynamics

Close to 15 million head of cattle were officially slaughtered in Argentina in 1977 according to the statistics collected by the National Meat Board (Junta Nacional de Carnes). Slaughter in the following year, 1978, was expected to reach record levels. For 1979 a slight decline in

TABLE 5.2

ARGENTINA: LIVESTOCK NUMBERS, 1960-1978
(Million head)

Year[a]	Cattle	Hogs	Sheep	Horses
1960	45.484	3.881	48.457	4.200
1961	47.494	3.387	50.150	4.184
1962	48.657	3.115	45.705	3.930
1963	48.520	3.340	46.067	3.761
1964	47.213	3.400	47.500	3.760
1965	49.173	3.700	49.000	3.760
1966	41.792	4.000	48.500	3.780
1967	53.120	3.000	49.000	3.800
1968	53.392	3.400	46.000	3.700
1969	53.291	4.098	44.320	3.660
1970	52.260	4.400	42.500	3.620
1971	51.877	4.900	39.000	3.580
1972	53.667	4.500	40.000	3.540
1973	54.837	5.000	41.000	3.500
1974	56.800	4.120	38.000	2.750
1975	58.700	4.200	38.500	2.700
1976	57.900	4.100	38.000	2.680
1977	57.700	4.200	37.500	2.700
1978[b]	56.750	4.200	37.200	2.700

SOURCE: USDA, Foreign Agricultural circular: Livestock and Meat, September 1978.

[a]Agricultural Census, years: 1960, 1969, 1974.

[b]Preliminary.

production over 1978 was forecast (USDA, World Agricultural Situation, 1979). In relation to the bovine stock of 59.6 million head, the 1977 slaughter level corresponds to an offtake rate of close to 25 percent. The long term average rate of offtake is estimated at 22 percent.

The historical pattern of cattle slaughter since 1953 is presented in Figure 5.1 and Table 5.3, superimposed over those for sheep and pigs. Two striking features of the bovine slaughter graph are evident: its secular upward trend and its cyclical behavior.

A. - Beef Cycles

The regularity of the fluctuations in cattle slaughter is unmistakable. Every six or seven years slaughter reaches a peak, only to plunge rapidly over the next two or three; a gradual recovery period of three to four years follows and the cycle begins again. The cyclical nature exhibited by the Argentine beef sector reflects the typical pattern of fluctuations in production of commodities where a long lag exists between production decisions and the time output reaches the market. In the case of beef cattle, it takes about three years to produce a new generation of animals. The length of the beef cycle thus corresponds to about twice the generation gap.

The rationale behind beef cycles is easy enough to understand in general terms. Cattlemen respond to high beef prices by trying to increase their volume of output, which in turn can be achieved only by increasing the size of the breeding stock. This is the natural and logical response from producers of any commodity. Moreover, high prices also attract into the industry many farmers, and non-farmers as well, who formerly were not involved in cattle production. Land is diverted from other uses to grazing or forage production. In order to increase the breeding herd, cattlemen retain a larger proportion of heifers as replacements instead of sending them for slaughter. Similarly, the number of cows culled is also reduced. As a result, meat prices increase in the short run even further and thus reinforce the decision to withhold females. This is the herd rebuilding phase of the cycle.

FIGURE 5.1

Argentina Livestock Slaughter 1955-77

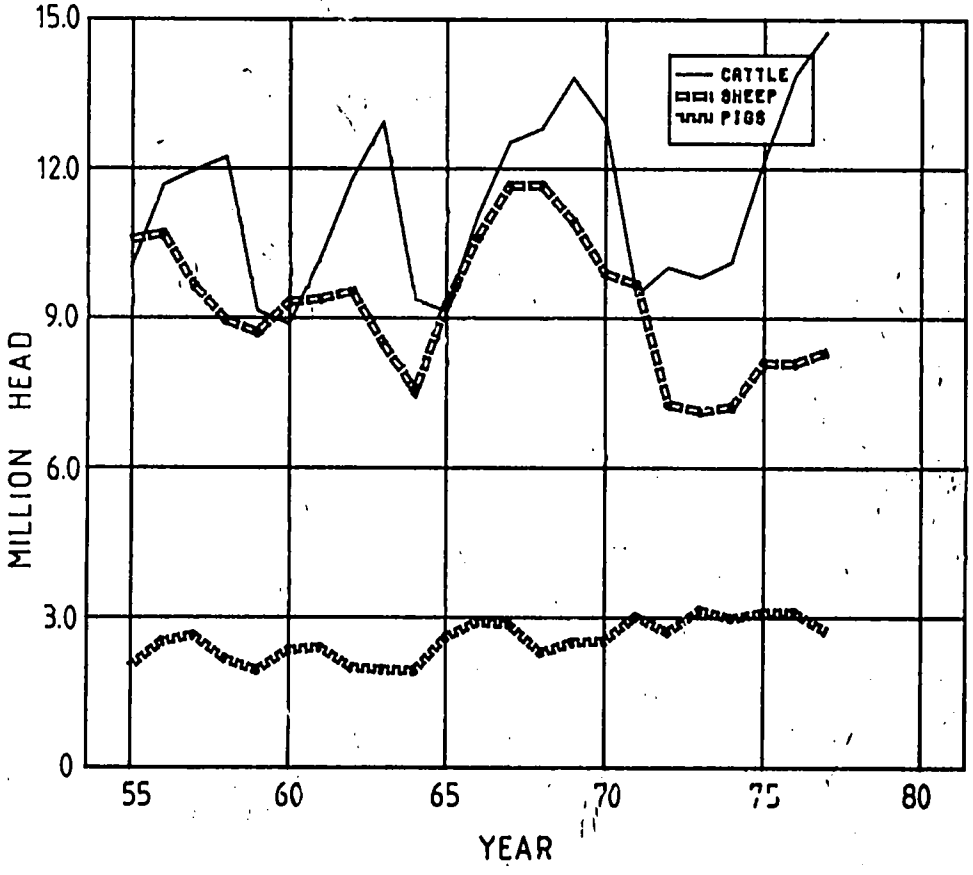


TABLE 5.3

ARGENTINA: COMPOSITION OF BOVINE SLAUGHTER, 1953-1977
(Million head)

Years	Steers	Males 1-year	Cows	Heifers	Calves	Bulls & Oxen	Total Cattle
1953	3.541	.905	1.729	.655	.310	.120	7.262
1954	4.126	.848	1.514	.630	.341	.132	7.594
1955	4.164	1.116	2.149	1.282	.588	.157	9.640
1956	4.619	1.218	2.610	1.892	.615	.225	11.181
1957	4.500	1.028	2.735	2.302	.766	.192	11.536
1958	4.682	1.180	2.835	2.125	.797	.256	11.877
1959	3.964	.918	2.002	1.218	.475	.168	8.748
1960	3.782	1.008	1.775	1.166	.565	.160	8.459
1961	3.617	1.457	2.267	1.470	.794	.204	9.812
1962	3.829	1.531	2.752	1.834	1.190	.251	11.390
1963	4.715	1.181	3.197	1.898	1.312	.271	12.576
1964	4.470	.659	2.139	.999	.499	.239	9.007
1965	4.374	.842	1.985	.865	.455	.234	8.758
1966	4.443	1.241	2.450	1.523	.820	.246	10.725
1967	4.481	1.370	2.915	1.878	1.285	.290	12.220
1968	4.382	1.329	2.959	2.093	1.436	.300	12.501
1969	5.498	1.367	2.751	2.238	1.297	.307	13.460
1970	4.775	1.490	2.825	1.826	1.327	.317	12.564
1971	3.878	1.154	1.973	1.096	.781	.223	9.107
1972	4.603	.985	2.213	1.021	.577	.248	9.650
1973	4.568	1.096	2.227	.865	.493	.226	9.477
1974	4.434	1.315	2.337	.803	.656	.208	9.754
1975	3.876	2.167	2.730	1.424	1.381	.205	11.786
1976	4.432	1.193	3.673	1.767	1.402	.299	13.488
1977	4.402	2.343	3.836	1.873	1.597	.295	14.347

SOURCE: JNC, Síntesis Estadística, 1977.

One year later, when the next calving season comes, there will be a larger than average calf crop. When that calf crop reaches slaughter age about two years later, the larger volume of beef supply causes prices to drop drastically. In response to the depressed prices many cattlemen go out of business, others shift into more profitable uses for their land, and others simply seek to reduce the size of their operations. To maintain a minimum level of income and to pay for the cost of the previous expansion, even breeding stock is put out for sale and slaughter. This stage is usually referred to as the herd liquidation phase. Needless to say, the consequences of those actions is a shortage of slaughter animals three years later, which induces a corresponding rise in prices. Hence there is a six-year length of the cycle, three to go up and three to go down.

Of course, this is an extremely simplified version of the sequence of events generating a particular beef cycle. All kinds of extraneous disturbances affect the path and duration of the beef cycle itself. In a country such as Argentina where exports account for about a quarter of total beef demand, developments in the international economy impinge directly on the cattle sector. In fact, the relative regularity that the beef cycle has maintained throughout the convoluted history of Argentina over the last few decades is truly remarkable.

Beef cycles are also found in the cattle sectors of other producing countries such as the United States, Canada, Europe, Australia and New Zealand. Until 1973 the cycle in European countries had a direct impact on that of Argentina since beef exports from the latter were overwhelmingly oriented toward the United Kingdom and the Common Market countries. The beef cycle in North America had a lesser influence in Argentina because sanitary regulations prevented Argentina, where hoof-and-mouth is endemic, from exporting unprocessed beef to the United States.

No thorough discussion of the dynamics of the Argentine beef cattle sector is attempted here. Nevertheless, short- and medium-term projections of Argentine supplies and prices require careful consideration of the cyclical movements. Inasmuch as beef exports to African countries may be price sensitive, their prospects over the next few years very much depend on where Argentina stands in the beef cycle.

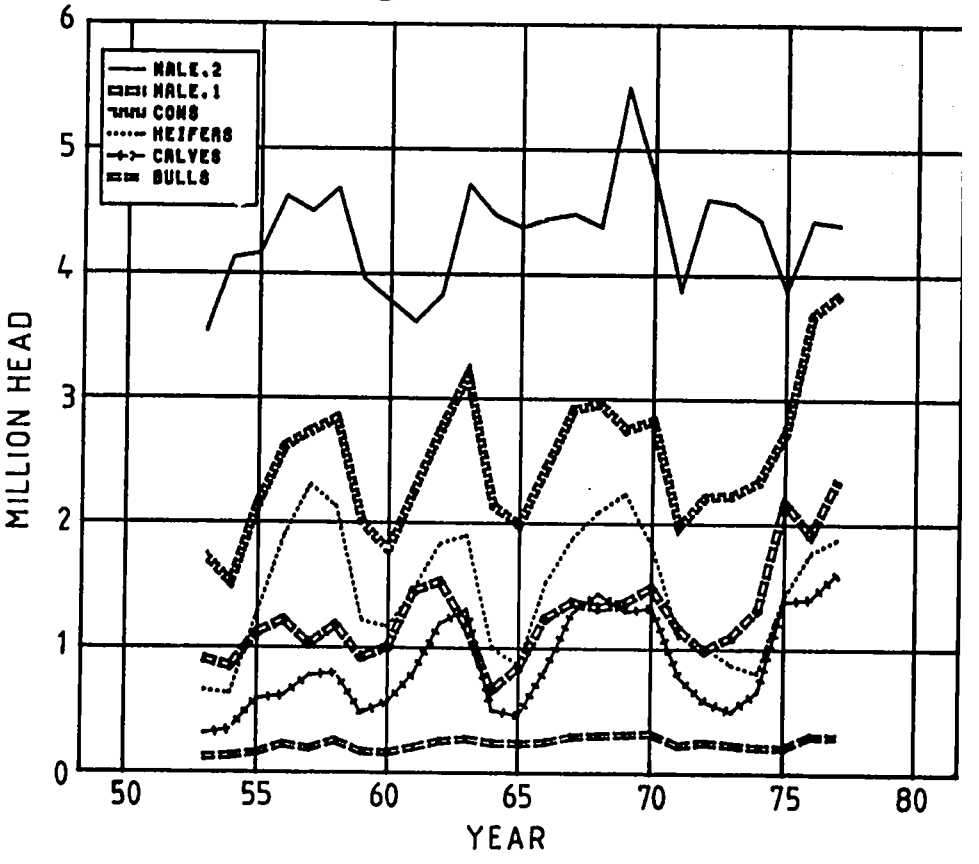
Graphic evidence of the underlying behavior of cattlemen in the course of the beef cycle can be observed in Figure 5.2 and Table 5.3, in which the composition of bovine slaughter for the period 1953-77 has been broken down by sex and age. The largest category of animals slaughtered consist of steers two years old or slightly older (novillos), weighing an average of 470 kilograms. They constitute from 50 percent of slaughter numbers in the rebuilding phase, when few females enter the final market, to 30 percent during the liquidation period. Their actual numbers do not vary in such a drastic manner nor closely follow the pattern of the cycle. The coefficient of variation for two-year-old steers for the 1953-77 period was only 10 percent.

The second largest category of bovines slaughtered are culled cows. Their graph shows the pronounced cyclical behavior that was postulated earlier. An almost parallel graph is followed by the number of heifers slaughtered. The coefficients of variation for cows and heifers in the 1953-77 period were 23 and 35 percent respectively, thus indicating the larger relative variation that they exhibit over the cycle. From the high levels of cow and heifer slaughter in 1977 we can infer that the cattle sector was then entering a severe herd liquidation phase. This was confirmed by subsequent reports of record slaughter in 1978 and by the expectations for 1979. The number of cows killed in 1977 closely approached the number (86 percent) of two-year-old steers. Historically this is an extremely high value since, despite the fluctuations in previous cycles, cows slaughtered had remained at 50 to 65 percent of the number of two-year-old steers. The equally remarkable rise in the ratio of heifers to two-year-old steers, from 19 percent in 1973 to 43 percent in 1977, also indicates a strong desire by cattlemen to liquidate their breeding stock. Such actions reflect the grave economic conditions affecting the Argentine cattle sector in the 1977-78 period. Alarm over these developments had been raised among industry analysis, and the subject was receiving wide discussion in the specialized press at the time of the author's visit in August 1978.

The prognosis derived from these observations is that the number of marketable animals is going to drop drastically in 1980 and will continue to be low for at least three years. Correspondingly high prices for beef will likely ensue.

FIGURE 5.2

Argentina: Composition of Bovine Slaughter 1953-77



Further evidence for this developing scenario is provided by two additional graphs in Figure 5.2, those for slaughters of one-year-old males and calves (male and female). They too conform to a cyclical pattern: in times of low prices cattlemen find it unprofitable to raise young animals to normal slaughter age (two years). Unlike the observed behavior in previous cycles, the number of one-year-old males slaughtered has exceeded that of heifers since 1974. The number of calves killed also reached an all-time high in 1977, though it remains a small proportion (11 percent) of total slaughters. This early slaughter will surely result in lower numbers of two-year-old males reaching the market in the next couple of years.

CHAPTER SIX

LIVESTOCK AND MEAT MARKETING

I. - Livestock Marketing Channels

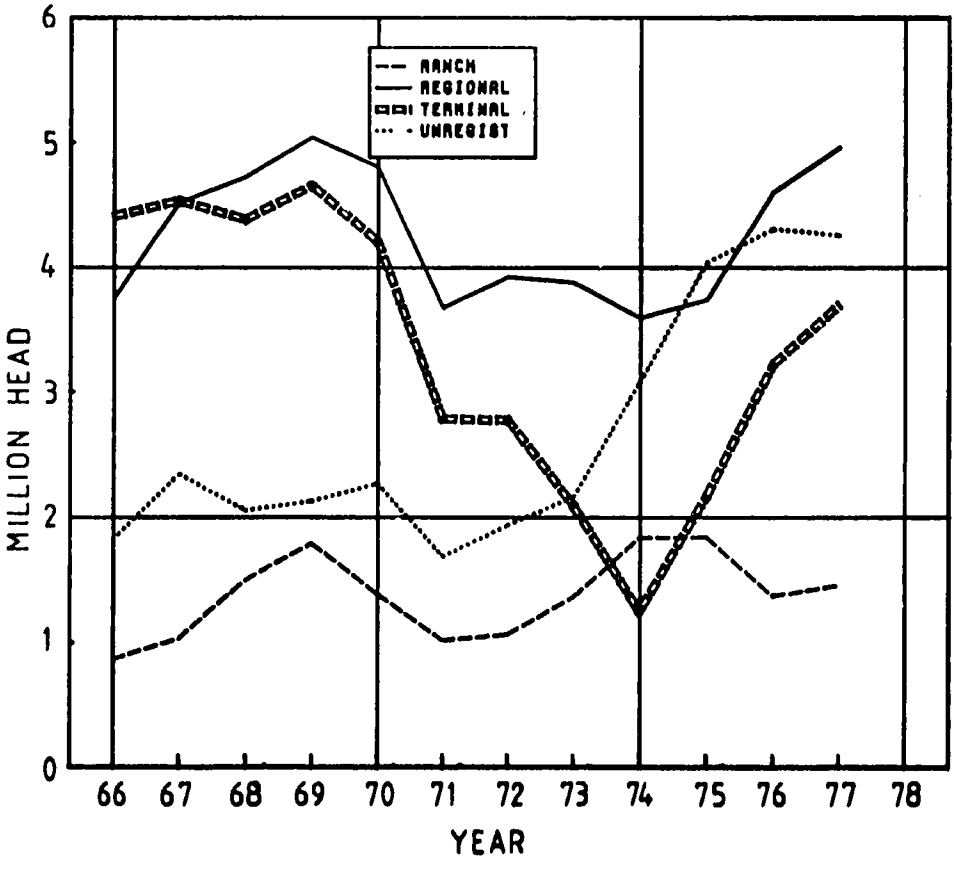
Cattlemen have three basic channels for marketing their output: selling directly at the ranch (estancia), selling at regional auctions and selling at the large terminal markets. Moreover, depending on their immediate destination, animals may be sold for breeding, for growing out, for domestic consumption or for export. In terminal markets animals are sold predominantly for slaughter, while in some regional markets most animals auctioned might go for breeding.

Over the past decade there has been a definite drift toward selling cattle at the ranch level and away from the large concentration markets. This is apparent in Figure 6.1, where the volumes sold through each channel are pictured. Registered farm sales do not in themselves show much increase through the decade. However, sales not registered with the Ministry of Agriculture or the National Meat Board show a sustained increase, and since 1973 they have exceeded the volume of transactions in the terminal markets. Most of the unregistered sales occur, needless to say, at the farm.

The marked decline in sales through the concentration markets that started in 1969, stopped and reversed itself in 1974; the recent ascending trend suggests that these terminal markets recovered a measure of their former importance in the late 1970s. The pattern exhibited by terminal market sales coincides with the cycle of cattle production. During times of high volume and low prices, ranchers tend to send a greater proportion of their cattle to the large concentration markets; by contrast, when prices are high and volume low, ranchers opt to sell at the ranch itself.

FIGURE 6.1

Argentina: Cattle Final Sales by Marketing Channel



II. - Marketing Costs

Cattlemen receive only about 80 percent of the price of stock at the Liniers market. The remainder is subtracted in the form of taxes, commissions, transport and other charges. Some of those charges are ad valorem; others are fixed per head of cattle. At the end of 1977 the following deductions were in effect.

(a) Ad Valorem Charges (based on the auction price at Liniers)

Animal Health Service (SENASA)	0.8 %
National Meat Board (JNC)	2.35
National Housing Fund	1.5
Sales Commission (sales agent)	2.0
Guarantee Fund (payment insurance)	1.0
Social Welfare Ministry	1.0
National Treasury Tax	4.0
Profit Tax, National Treasury	0.27
Liniers Market Fee	0.40
Total Ad Valorem Charges	13.32 %

(b) Per Head Charges (cattle sold at Liniers market)

Veterinary Service	10 Pesos/head
Loading, Unloading, Weighing	250 Pesos/head
Watering and Feeding	140 Pesos/head
Total Charges per head	400 Pesos/head

(c) Transport Costs

Truck	11 Pesos/km/head
Cost of 400-km Trip	4400 Pesos/head

Nevertheless, there exists a definite tendency toward a relative decline of sales through terminal markets; their share of the national total dropped from 41 percent in 1966 to 26 percent in 1977. The trend is attributable in part to the increased decentralization of the meat packing industry. A few giant plants in the neighborhood of Buenos Aires no longer process the bulk of slaughtered cattle. Many of those giants

have become obsolete and have closed. New, smaller and highly efficient packing plants have been successfully established, often in sites closer to sources of cattle. Their proximity to ranchers enable these plants to procure their slaughter animals directly from them. Ironically, the regional auction fairs have not benefited from this trend; their volume of sales has remained relatively stable over the last decade.

A. - Liniers Market

A description of the Argentine cattle marketing system is not complete without special mention of the Liniers market, the single most important link in the entire system. In size and organization alone, it is a most impressive spectacle.

Liniers is truly the terminal market in Argentina. There are three other terminal markets, those of Rosario, Córdoba, and Santa Fe, but together they handle only a small fraction of the volume of Liniers. The latter is the market for the Buenos Aires metropolitan area as well as the main market for export quality cattle. Curiously, it is located only one-half hour's drive away from downtown Buenos Aires. With the expansion of the city, Liniers is now surrounded by residential and industrial zones; consequently, its relocation to new installations at Mercedes, a small town about 100 kilometers from Buenos Aires, is currently under preparation.

Only cattle and swine pass through Liniers. The main terminal market for sheep is located in Avellaneda, a town adjacent to Buenos Aires. Almost 25,000 head of cattle were sold on the day of the author's visit in late August 1978, and it took less than two hours to auction all of them. Animals start arriving late in the afternoon and continue coming all night. Large open semi-trailer trucks are the preferred method of transport, but railroad cars also bring about one-quarter of the stock. For the day in question the arrival of 718 trucks and 76 railroad cars was recorded. After unloading, counting and recording each arrival, market staff transfer lots of animals from the unloading yards to the sales pens. There are close to 6,000 such pens occupying an area of over thirty hectares. Each pen accomodates thirty to forty head; animals in a lot come already sorted by sex, age and condition.

Auctioning begins at 8 a.m., and several auctions take place simultaneously. Each lot remains in its pen instead of being brought to the buyers for inspection. Interested parties move from pen to pen either on horseback or along a network of elevated corridors crisscrossing the yards. No more than a minute is needed to auction a lot. Prices are quoted in pesos per live kilogram, and the whole lot is bought at a time. By 10 a.m. the entire day's supply has been auctioned. The market operates for five days a week, with the greatest volumes on Mondays, Tuesdays and Wednesdays.

Bidding is done by wholesale butchers and purchasing agents of abattoirs and packing houses. There are close to 400 purchasing firms registered at the Liniers market; on the other hand, there are over one hundred registered sales agent firms which sell the animals on behalf of cattlemen on a commission basis. Each consignment firm maintains an office on the market premises. Large packing firms maintain several purchasing agents on the floor at one time and use walkie-talkies to keep in contact with them. A small radio station broadcasts the day's volumes and prices. In all respects, Liniers can be said to be a free, open and fully competitive livestock market. For that reason prices at Liniers serve as reference for those of other markets across the country.

Once a lot is auctioned, the brand of the purchaser is painted on the back of the animals. Shortly thereafter, cowboys take the lot for weighing to one of the forty-four giant scales, capable of weighing the entire lot at once. The appropriate documents are exchanged between the sales agent and the purchasing firm. Payments are made immediately or within a day or two; three banks in the premises facilitate financial settlements. Before the sales agent transfers the funds to the cattleman, the appropriate deductions for commissions, charges and taxes have to be made. A special fund is maintained to guarantee payment to cattlemen in cases of default by either purchasers or sales agents.

Copies of all documents pertaining to animal transactions and movements are passed along to the market administration. A summary of every single transaction is published in the Daily Information Bulletin of the National Meat Board, giving names of sales agent and purchaser, number of

head, type of animals, classification by weight and condition, average weight, and price per live kilogram. The same bulletin contains similar information from the other terminal cattle markets in the nation -- Rosario, Santa Fe and Córdoba. Separate sections in the Bulletin cover the markets for swine and sheep. In addition, daily statistical summary tables for each market and species are prepared by the National Meat Board and distributed to the communications media.

TABLE 6.1

ARGENTINA: CATTLE FINAL SALES BY MARKETING CHANNEL, 1966-1977
(Million Head)

Year	Ranch	Regional Auctions	Concentration Markets: Total	Liniers	Not Registered	Total[a] Offtake
1966	.866	3.774	4.409	4.147	1.825	10.844
1967	1.030	4.518	4.534	4.257	2.345	12.427
1968	1.496	4.727	4.384	4.077	2.056	12.663
1969	1.793	5.041	4.658	4.355	2.129	13.621
1970	1.384	4.806	4.207	3.906	2.271	12.668
1971	1.016	3.675	2.789	2.596	1.686	9.166
1972	1.063	3.921	2.777	2.561	1.938	9.699
1973	1.360	3.878	2.093	1.939	2.165	9.496
1974	1.836	3.595	1.247	1.098	3.080	9.758
1975	1.842	3.739	2.170	1.897	4.036	11.787
1976	1.366	4.602	3.224	2.916	4.307	13.499
1977	1.456	4.957	3.701	3.267	4.254	11.368

SOURCES: JNC, Síntesis Estadística.

[a]Includes exports on the hoof.

Thus, a rancher sending a lot of 2-year old steers in late 1977 to the Liniers market would receive about 82 percent of their auction value:

Value of Steer	101,200 Pesos
(Average weight: 440 kg)	
(Average price per live kg: 230 pesos)	
Ad Valorem Charges	13,480 Pesos
Per Head Charges	400 Pesos
Transport Cost (400 km)	4,400 Pesos
Total Deductions	18,280 Pesos
Net Value Received by Rancher	82,920 Pesos
Marketing Cost	18 %

Naturally, marketing costs for culled cows or other less valuable animals would be proportionately greater. The same calculations for a culled cow of 380 kg sold live at 150 pesos per kilo would give a return of only 78 percent of the auction value.

Marketing charges for other terminal markets vary slightly, but are comparable in magnitude. At the Rosario market, for example, ad valorem charges amount to only 12.8 percent but charges per head were 1,014 pesos. The corresponding figures for Santa Fe were 12.75 percent and 740 pesos per head.

Transportation cost is the major factor determining where a rancher decides to sell his cattle. Each terminal market has well defined zones of supply. Price differentials between the Liniers and Rosario markets slightly exceed the cost of transport, but this can be attributed mostly to the higher quality of cattle sold in Liniers, rather than to any shortcomings in the marketing system.

III. - The Meat Industry

Cattle slaughter takes place in two main types of establishments, slaughterhouses (mataderos) and packing houses (frigoríficos). The latter differ from the former in having the capacity to both process and

refrigerate meats and other livestock products. Small local abattoirs in the interior of the country also attend to the needs of small communities. Needless to say, a substantial amount of slaughter also takes place at the ranches themselves without being officially recorded.

Close to 120 establishments in the nation were registered with the National Meat Board in 1977 and thereby obtained grading and inspection service provided by the latter. Most of these establishments are located within a short distance of Buenos Aires: thirty-six within Gran Buenos Aires proper (metropolitan area) and twenty-six additional ones in the surrounding Buenos Aires Province. Almost all are licensed to slaughter cattle for domestic consumption. The few remaining are those specializd in slaughtering pigs. However, only about half of the registered establishments -- fifty-five to be precise -- are authorized to slaughter cattle destined for export. Since each importing country has its own peculiar requirements for health, grading, packaging, and handling, no single frigorífico is entitled to export to all markets. Different types of products also carry specific import requirements. Frigoríficos exporting to Israel, for example, need to have separate kosher slaughter lines. A few of the largest packing houses engaged in exports are worth mentioning: Rioplatense, CAP La Negra, Montegrande, Antártico, Swift (de la Plata and Rosario), Nazario Parra, Penta, Bovril and CEPA.

Some abattoirs slaughter only their own animals; others slaughter only cattle brought by wholesale meat distributers (abastecedores), but the majority do a combination of both. Slaughtering fees vary from one establishment to another depending on the distribution of products. For instance, one frigorífico, Yaguane, actually pays the wholesaler 30 pesos per live kilogram for the privilege of slaughtering his animals; needless to say, the frigorífico keeps the skin, head and offals in the process. The latter are sold to merchants specialized in the trade of offals either for consumption or for processing.

Two-year old steers break down into the following components, by weight, after slaughter (figures from the National Meat Board).

Carcass	57.23 %
By-products (skin, head, legs, blood)	16.41 %
Edible offals (liver, kidneys, tongue, heart, brains)	3.79 %

Viscera (rumen and other stomachs)	2.53 %
Edible fat	5.21 %
Pharmaceutical purpose tissue	0.28 %
Gut fill	11.04 %
Shrinkage	3.51 %
Total	100.00 %

In addition to the abattoirs and frigoríficos, there is a multitude of meat processing plants (fabricas) which specialize in the preparation of meat products such as sausage and prepared meats, using raw materials obtained from slaughtering establishments. Moreover, the availability of large volumes of other slaughter by-products have given rise to a variety of industries. Fat tissue and legs are separated for industrial users; pharmaceutical laboratories purchase pituitary glands and other tissues, including the epithelium of the tongue for the manufacture of hoof and mouth vaccine; blood and bones are used in preparing balanced feed for poultry and swine; and skins are channelled to the flourishing leather industry.

IV. - Red Meat Consumption

Argentina has the highest per capita beef consumption in the world, although Australia leads in total consumption of all meats. In 1978 an estimated ninety-eight kilos of beef were consumed per person in Argentina (Orientación Pecuaria, 1978). The figure exceeds the 1977 level of 88.8 kg. By comparison, beef consumption in the United States in 1977 was estimated at 58.8 kg and in the European Community at 25.8 kg (USDA, 1978). Beef consumption in Sahelian countries is estimated at about three kg per person, and it is even lower in coastal West African countries.

In addition to bovine meat, Argentinians consumed in 1977 an average of 3.9 kg of sheepmeat, 8.9 kg of pork and 10.1 kg of poultry meat per person, totaling 111.7 kg of all kinds of meat per year of which 110.6 were red meats. Fish, not included in this total, also plays a small role in the Argentine diet.

The evolution of per capita beef consumption from 1955 to 1977 is shown in Figure 6.2, along with that of mutton and pork. The cyclical patterns exhibited by beef and total red meat consumption are very pronounced, and both show a significant downward trend over the past two decades. The preponderance of beef over other red meats is evident. Over 87 percent of red meat consumption in 1977 was beef, and this percentage diminished only slightly in the course of the beef cycle, as may be appreciated in Table 6.2. The lowest recorded percentage for beef since 1960 was 70 percent in 1971. The stability of the share of beef in red meat consumption implies that most of the variation in red meat consumption is accounted for by fluctuations in the availability of slaughter cattle for domestic consumption. Substitution of other meats for beef does occur but only on a minor scale, not sufficient to compensate for the large fluctuation in beef consumed. Pork consumption, for example, exhibits a movement countercyclical to that of beef consumption, but its part in the Argentine diet is so small -- about 9 percent -- that its impact on total red meat consumption is minor.

Mutton consumption per capita in Argentina exhibits a consistent downward trend over the 1960s and 1970s. The drop is particularly noticeable in the 1970s. From a high of 6.8 percent in 1960, mutton's share was reduced to merely 3.8 percent in 1977 and even less in 1976. This amounts to less than half of the share of pork.

In absolute terms, pork consumption fluctuates cyclically within a narrow range, between seven and ten kilograms per person; it does not show, though, any apparent secular trend. The fluctuations in pork are evidently closely tied to the availability of beef in the market, but they also reflect the internal cycle of swine inventories, since the length of pork cycles seem significantly shorter than those for beef and the cyclical pattern is less obvious, especially in the 1970s.

V. Junta Nacional de Carnes: National Meat Board

The Junta Nacional de Carnes (JNC) is the organization charged with overseeing all aspects of the livestock and meat trade in Argentina. It is within the Ministry of Economics but is financed independently through a levy on all final sales of livestock. Its directorate includes representatives of all sectors directly involved in the livestock and meat industry.

FIGURE 6.3

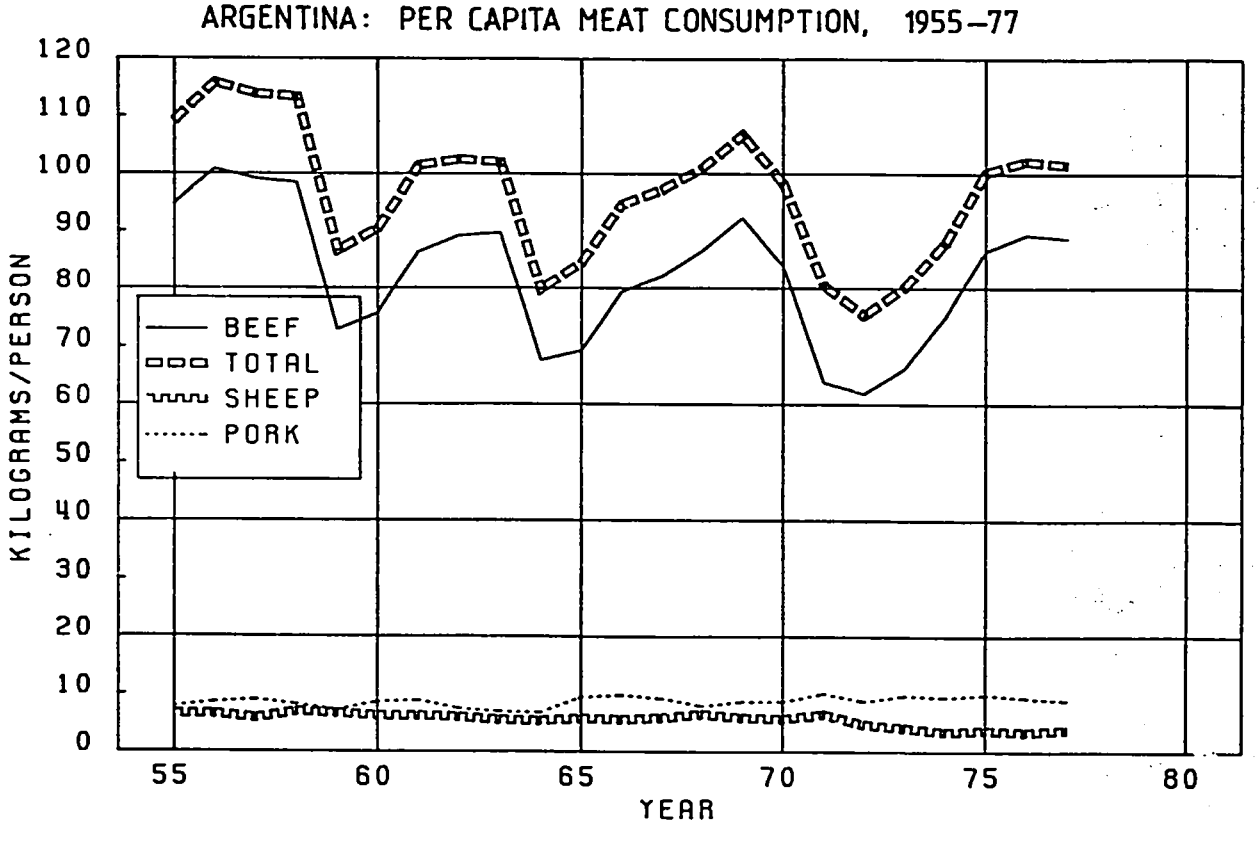

ARGENTINA: PER CAPITA MEAT CONSUMPTION, 1955–77
KILOGRAMS/PERSON
120
110
100
90
80
70
60
50
40
30
20
10
0
55
60
65
70
75
80
YEAR
BEEF
TOTAL
SHEEP
PORK

TABLE 6.2

ARGENTINA: RED MEAT CONSUMPTION PER CAPITA, 1960-1977

Year	Beef kg/cap	Beef %	Mutton kg/cap	Mutton %	Pork kg/cap	Pork %	Total kg/cap
1960	75.7	83.6	6.2	6.8	8.6	9.6	90.5
1961	86.4	85.2	6.2	6.1	8.9	8.7	101.5
1962	89.2	86.9	6.0	5.9	7.4	7.2	102.6
1963	89.7	87.8	5.5	5.4	6.9	6.8	102.1
1964	67.6	84.7	5.4	6.8	6.8	8.5	79.8
1965	69.3	81.8	5.8	6.9	9.5	11.3	84.6
1966	79.3	83.7	5.6	5.9	9.9	10.4	94.8
1967	82.1	84.5	5.9	6.0	9.3	9.5	97.3
1968	86.6	85.7	6.5	6.5	7.9	7.8	101.0
1969	91.2	86.3	5.9	5.5	8.7	8.2	106.9
1970	84.0	85.4	5.7	5.8	8.7	8.8	98.4
1971	63.8	79.2	6.5	8.1	10.2	12.7	80.5
1972	61.9	82.1	4.8	6.3	8.8	11.6	75.4
1973	66.2	82.5	4.2	5.2	9.8	12.3	80.2
1974	75.1	85.2	3.5	4.0	9.5	10.8	88.1
1975	86.6	86.4	3.8	3.8	9.9	9.8	100.3
1976	89.4	87.4	3.5	3.4	9.4	9.2	102.3
1977	88.8	87.4	3.9	3.8	8.9	8.8	101.6

SOURCE: JNC, Síntesis Estadística, 1977.

Board members are appointed by the National Executive from candidate lists submitted by the Ministry of Agriculture, by other branches of the government and associations of meat packers, trade unions, cattlemen, merchants, etc. The JNC is therefore the executive agency charged with carrying out government policy concerning livestock and meat.

A new meat law (Ley No. 21.740) redefining the role of the JNC went into effect in July 1978. It is too early to tell the real impact of the new legislation; the net effect is clearly to reduce the power and authority of the Board. For one thing, the levy of 2.35 percent on livestock sales formerly channelled to the JNC has been reduced to only 1 percent, one-third of which is to be used in export promotion, leaving only two-thirds to finance administrating activities.

The basic function of the JNC is to monitor and facilitate trade in livestock and meat. Few of its activities can be considered production-oriented. Livestock research is in the hands of the Agricultural Research Institute (INTA). Animal Health is administered separately in the Ministry of Agriculture (Secretaría de Agricultura y Ganadaría). Although the mandate of the JNC includes all livestock species and their products, JNC activities are heavily concentrated on cattle and beef and to a lesser extent on sheep and pork.

As the central monitor of the livestock trade, the JNC is charged with collecting, processing, and disseminating a vast amount of statistical data. It publishes a daily and weekly bulletin of statistics, quarterly summaries and an annual statistical synthesis. Its computing center maintains an admirable flow of up-to-date data. Analysis of the data is seldom done by the JNC itself. Although its executives often make public speeches on the sector, close analysis of the data is more often found elsewhere, in publications aimed either at cattlemen or at enterprises in the meat packing industry.

Regulation of the livestock and meat trade involves the JNC directly in every phase of the marketing circuit. It sets, for example, the classification standards for live animals and the meat grading standards for both the domestic and the export markets. It licenses all agents involved in livestock trade, such as auctioneers, consignment agents,

wholesale butchers, meat retailers, slaughterhouses, packing plants and exporters. It is JNC's responsibility to certify that an exporter meets sanitary and other requirements for exporting a given product to a particular country.

JNC is also the official representative of the Argentine government in international agreements on the meat trade. It is empowered to negotiate agreements with other governments. Commercial transactions, however, are left for private meat exporters to arrange themselves. Under the new law the export promotion activities of the JNC have been emphasized.

Prices for meat at the retail level are determined by competitive forces; however meat prices are closely monitored by the JNC since meat constitutes such an important component of the consumer basket. Direct price controls in an economy with an extremely high inflation rate would be a hopeless undertaking. Instead, interventions in the past have taken the form of vedas or prohibitions of slaughter or sale of meat on particular days of the week. This measure was adopted in the early 1970s, when the beef cycle was going through the herd rebuilding phase and domestic demand was so high that little meat was left for export.

VI. - Corporación Argentina de Productores: Argentine Meat Producers Association

Perhaps the single most influential organization in the marketing structure for livestock and meat in Argentina was the Corporación Argentina de Productores de Carnes, simply known as CAP. The past tense is used because in July 1978 the national government decreed a radical restructuring of the organization. The future role of CAP in the livestock and meat market, if any, is uncertain at the moment.

CAP was founded in 1935 as part of a program to counter the excessive influence of English and North American enterprises in the meat

packing industry and the meat trade. The British companies then were Anglo, Smithfield, River Plate, Bovril and Liebig; the U.S. companies were Swift, Armour, Wilson, and La Blanca. Competition among these large concerns led on occasion to veritable "meat wars." Nevertheless, it was felt at the time that Argentine cattlemen were being victimized by foreign firms with complete control of meat exports.

CAP was therefore created to provide Argentine livestock producers an alternative outlet controlled by themselves. A charge of 1 percent of value on all animals sold for slaughter was imposed and channelled to finance the establishment and operations of CAP. Through its own packing plants, CAP was active in both the domestic and the export market for meats. Management of the corporation was technically in the hands of a council made up of representatives of regional associations of livestock producers. The national government, however, often deemed it necessary "to intervene" by imposing chief executives and taking control of the administration. The latter has been the situation since August 1973.

The demise of CAP has a long gestation: through the decades it had accumulated, sometimes unwillingly, a number of obsolete packing plants that it was forced to maintain in operation. Of the eight plants owned by CAP in 1978, only five were considered commercially viable: Rosario, Cuatreros, Puerto Vilelas, Villa Mercedes, and Puerto Deseado. La Negra, Yuqueri and Río Grande are not expected to remain active. The largest one, Frigorífico Lisandro de la Torre, had already been closed in August 1977.

During the international meat crisis in 1973, CAP also suffered decisive financial setbacks. In a period of rapidly rising prices, CAP had to purchase cattle at prices higher than those it had negotiated in large contracts with Israel, Spain and Italy. By 1978 CAP had accumulated a debt of close to 50 million dollars, which was growing at the rate of about 2 million dollars each month. These liabilities already exceeded the market value of the physical assets of the corporation. Given the declared policies of the current government to reduce the role of the state in the economy, the dissolution or at least the decentralization of CAP seems imminent.

It is no longer valid to argue that CAP is necessary to counterbalance the influence of oligopolistic foreign interests in the meat industry. Foreign capital no longer has a controlling role in any of the meat processing enterprises, despite the retention of foreign names by many. The large number and dispersion of packing plants and slaughter houses insure a high degree of competition in the meat sector.

The removal of CAP may have an impact on prospects for the African market. CAP was indeed active in promoting new markets for Argentine meat: it established its own subsidiaries in Spain (Sacomex) and Italy (Siargen). CAP-London was the main outlet for Argentine beef in the United Kingdom. Through its Spanish subsidiary, it initiated exports to Zaire and the Canary Islands. It had sent trade delegations to African countries in an effort to establish direct commercial channels for the meat trade. Whether these efforts will be renewed and maintained by its successors or by other Argentine concerns is uncertain.

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A STUDY OF THE DIRECT AND INDIRECT EFFECTS OF AUSTRALIAN MEAT EXPORTS ON THE RED MEAT MARKETS OF CENTRAL WEST AFRICA

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March 1979

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SUMMARY

1. Australia is the largest individual supplier of beef and veal and mutton to world markets. According to U.S.D.A. world wide assessments in 1977 Australia exported 26 per cent of the world beef and veal trade and 33.4 per cent of the world mutton and lamb trade. In terms of the total international trade in red meats Australia supplied 27 per cent of this trade in 1977 and together with New Zealand supplied 43 per cent of the total red meat trade.

2. The Australian farming sector contributes approximately half of the value of all Australian exports with meat exports contributing 9.4 per cent of total exports and thus it plays an important role in the Australian economy.

3. Sheep numbers in Australia have declined from 180 million in 1970 to 131 million in 1978 but are now beginning to increase again with an estimated 2.1 per cent increase during 1978/79. This flock is essentially a wool producing flock with 75 per cent of all sheep being of the Merino breed which has been developed for wool production.

4. Cattle numbers in Australia increased from 18 million to 33.4 million head over the period 1967 to 1976 which represented the fastest sustained rate of growth in the industries' history. Since 1976 cattle numbers have begun to decline and in March 1979 were estimated at 27.2 million.

5. Lamb production since 1966/67 has ranged between 344 and 229 thousand tonnes carcass weight of which an average of 88 per cent has been consumed domestically leaving from 11 to 53 thousand tonnes for export.

6. Mutton production since 1966/67 has ranged between 588 and 228 thousand tonnes carcass weight of which an average of 42 per cent has been domestically consumed leaving from 353 to 123 thousand tonnes for export.

In addition live exports of sheep for slaughter has rapidly increased reaching 4.9 million head in 1978.

7. Beef and veal production has increased nearly every year (exceptions 1968/69, 1972/73 and 1973/74) since 1966/67 reaching a record 2.1 million tonnes carcass weight in 1977/78. Of this production 50 per cent has been exported since 1966/67.

8. The principal markets for Australian lamb have been the United Kingdom until 1974 and the Middle East since 1974. For mutton Japan has consistently been the major market over the last twelve years. Live sheep have largely gone to the Middle East and in particular to Iran. Beef and veal has gone principally to the United States. Central West Africa has not been an important market for Australian meat. The largest shipments to this region occurred in 1970 and consisted of 1156.9 tonnes which constituted one fifth of one per cent of total Australian red meat exports.

9. No regular shipping service for meat exists between Australia and West Africa. Shipments can be made by transhipping via the East Coast of U.S.A., Hong Kong or Tilbury or by charter. All alternatives are expensive and the latter requires reasonably large tonnages before such an approach is warranted.

10. Australian sheep numbers are projected to increase every year through to 1984/85 reaching a total sheep population of 144.2 million at that stage. However this number is still low by historical standards with the Australian flock averaging 158.7 million head over the last twelve years.

11. Australian lamb production is projected to remain at low levels especially over the next three years as sheep producers strive to build up sheep numbers. By 1984/85 it is expected that lamb production will have reached 255 thousand tonnes which is still below the average lamb production over the last twelve years of 277 thousand tonnes.

12. Australian mutton production is projected to remain at low levels by historical standards through to 1984/85 because of the present low flock numbers. From a projected bottom of 208 thousand tonnes in 1979/80, mutton production is projected to gradually increase reaching 337 thousand tonnes in 1984/85. Over the last twelve years mutton production has averaged 369.5 thousand tonnes.

13. Australian beef production is projected to decline from present record levels through to 1981/82 before gradually increasing once again. By 1984/85 it is projected that beef production will be approaching the present high levels of production once again. Production is projected to reach 1,914 thousand tonnes in 1984/85 after falling to 1,551 thousand tonnes in 1981/82. Australian cattle numbers are projected to bottom at 27 million during 1980 before increasing once again to reach 31.3 million by 1985.

14. The traditional markets for Australian meat exports of the United States, Japan, Korea and the Middle East are likely to absorb practically all projected Australian sheepmeat exports through to 1985 and the majority of beef exports. By 1985 it is likely that beef exports will exceed the demand from these traditional markets providing supplies to non-traditional outlets as occurred during the middle 1970s.

15. Africa is not expected to become an important market for Australian meat. Most African markets, and especially West African markets, are seen by most Australian exporters as last resort markets.

16. It is projected that Australian exports of red meat will not expand significantly between now and 1985. In fact a reduction in red meat exports is projected in the short term before increasing again. Markets for these exports are expected to be plentiful, especially in the short term. In the longer term beef supplies may become excessive, however it is unlikely that exporters will have to look seriously at West African markets to

dispose of such supplies. Thus Australian meat exports are not expected to directly affect the red meat markets of West Africa. However there may be some indirect effects because of exports to the Middle East and perhaps Libya.

1. INTRODUCTION

The Agricultural Business Research Institute was engaged on the 1st of May, 1978 by the Regents of the University of Michigan to undertake an indepth study of the lamb, mutton and beef industries of Australia and New Zealand and to assess if future exports from these countries would effect the red meat markets of Central West Africa. This project has been undertaken in two parts. This paper covers a study of Australian meat production and exports. A second paper covers the New Zealand component of the project.

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2. HISTORICAL REVIEW OF THE AUSTRALIAN MEAT INDUSTRY 1967/68 - 1977/78

2.1 Economic Background to the Australian Meat Industry

2.1.1 Background to the Australian meat industry

The farming sector plays an important role in the Australian economy contributing over the last ten years 48 per cent of the value of all Australian exports. However the importance of the farming sector has declined over the last ten years although it is likely to regain importance over the next few years. In 1967/68 the farming sector contributed 60.2 per cent of the value of all Australian exports while in 1977/78 it contributed only 43.1 per cent. The value of Australian meat exports has averaged 9.4 per cent of all exports over the last ten years. In 1977/78 meat exports contributed 9.1 per cent of all exports.

U.S. Department of Agriculture world wide assessments of red meat production and exports and imports for 1977 show Australia producing 5.0 per cent of beef and veal, 11.6 per cent of mutton, lamb and goat meat but exporting 26.0 per cent of the world beef and veal trade and 33.4 per cent of the world mutton and lamb trade. Thus in terms of international trade of red meats Australia is a major force. In fact it is the largest individual supplier of beef and veal and because it is 'disease free' such meat can be exported to all markets expecially the high priced U.S. market. Australia is the largest individual supplier of mutton to world markets.

2.1.2 Economic performance of the sheep and cattle grazing industries

In Australia because of marked changes in climate across the country the type of grazing enterprise changes significantly from region to region. Northern Australia is a specialised beef producing area operated along extensive lines while southern Australian pastoral areas are broadly mixed sheep-cattle producing areas run along intensive lines. Thus the economic performance of the sheep and cattle grazing industries vary from region to region. However the Australian Bureau of Agricultural Economics do monitor the economic

performance of the sheep and cattle industries by states via regular Australian Sheep Industry Surveys, Australian Beef Cattle Industry Surveys and Australian Grazing Industry Surveys. By using this data comparisons between the sheep and cattle industries in relation to profitability as measured by rate of return to average capital and management can be made on a state by state basis. The sheep industry data shown in Table 2.1 relates to properties carrying at least 200 sheep. The cattle industry data shown in Table 2.2 relates to properties with more than 50 per cent of the total grazing pressure (measured in stock equivalents) in cattle. It can be seen that the returns to cattle producers overall are less on average than sheep producers. However there are large fluctuations in the returns of both. Sheep producers performed very well during 1972/73 and 1973/74 due to a combination of improved mutton, lamb and wool prices. Beef producers on the other hand have performed very poorly since the collapse of the beef market in the second half of 1974.

Since the second half of 1977/78 prices for red meats in Australia have strengthened considerably after a long period of deteriorating terms of trade. Figure 2.1 shows the ratio of prices received to prices paid by primary producers since 1957/58 to 1977/78 but doesn't show the recent improvement mentioned above. Australian primary producers have only survived this long period of deteriorating terms of trade through their ability to achieve significant improvements in productivity.

Table 2.1

Australian Sheep Properties
Rate of Return to Capitcl and Management

Years	N.S.W.	VIC.	QLD	S.A.	W.A.	TAS.	N.T.
				%			
1967/68	4.5	-3.9	7.0	-3.1	8.4	0.4	-
68/69	11.3	8.6	10.9	12.6	12.2	1.9	-
69/70	5.9	7.2	-0.2	2.3	0.8	6.6	-
70/71	4.1	4.6	-0.9	-0.3	3.4	3.3	-
71/72	3.1	8.2	9.0	4.6	9.1	5.7	-
72/73	15.7	16.7	23.7	11.9	17.6	11.8	-
73/74	49.1	21.6	14.8	17.7	36.2	16.1	-
74/75	12.7	4.6	-1.1	33.5	16.7	-2.4	-
75/76	4.5	0.7	2.1	1.5	8.4	-4.4	-

No sheep in the Northern Territory.

Table 2.2

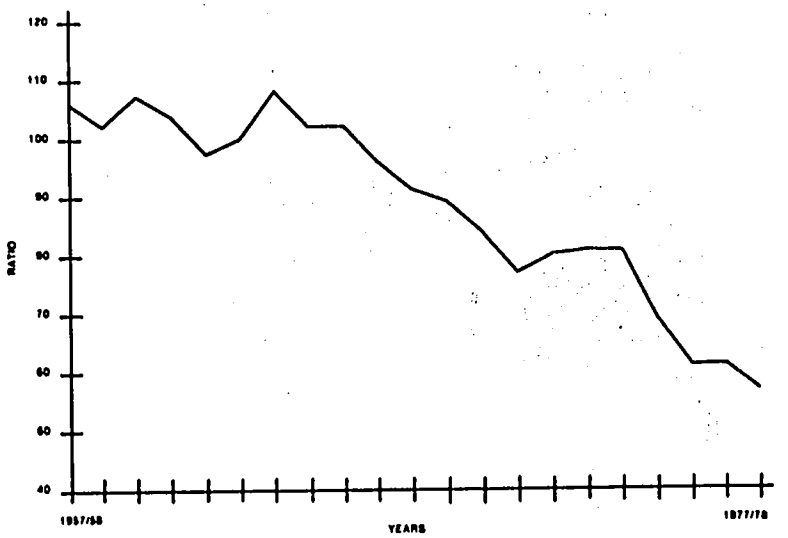
Australian Cattle Properties
Rate of Return to Capital and Management

Years	N.S.W.	VIC.	QLD	S.A.	W.A.	TAS.	N.T.
				%			
1967/68	-	-	-	-	-	-	-
68/69	4.5	2.6	4.2	2.8	3.1	3.8	4.6
69/70	4.1	4.0	1.3	2.7	1.7	2.8	1.8
70/71	3.5	3.3	2.7	3.3	3.3	3.1	3.0
71/72	3.8	3.6	5.1	3.5	3.0	4.8	1.5
72/73	-	-	-	-	-	-	-
73/74	3.2	9.5	4.6	16.7	8.3	4.5	5.6
74/75	1.2	-12.2	11.2	-9.3	-21.5	-12.1	-8.9
75/76	-11.0	-17.2	3.5	0.5	-6.9	-5.0	-3.6

No beef cattle surveys for the years 1967/68 and 1974/75.

Figure 2.1

Ratio of prices received to prices paid by primary producers' 1957/58 to 1977/78



2.1.3 Cost of processing and marketing meat

Processing and marketing costs in Australia vary greatly across the country largely due to differences in freight costs. Also the costs of slaughter in particular have changed significantly over time and differ markedly between regions. As an example of the latter, cattle slaughter charges ranged from a low of $14.66 per head at Casino in the state of New South Wales to a high of $35.33 per head at the Homebush abattoir in Sydney as at June 1978. As an example of slaughter cost increases the cost of slaughter at Homebush has increased from $5.77 per beast and $0.62 per sheep in 1966 to $35.03 per beast and $4.25 per sheep in 1978. These large increases are largely due to significant increases in labour costs.

Examples of the cost of processing and marketing beef in Australia have been recently prepared (December 1978) for the Australian government by the

Prices Justification Tribunal. This tribunal assessed the cost of killing beof for export markets via a survey of sixteen major private abattoirs in eastern Australia. The total C.I.F. cost of processing typical export beasts to the U.S.A. ranged from $1.30 per kg dressed weight to $1.12 per kg. An example of a typical cost structure is shown in Table 2.3.

Table 2.3

Cost of Processing Export Beast to U.S.A.
December 1978
(An east coast meatworks)

Livestock description (dressed weight) kgs.	163
Kill and Chill Charges, including government charges and overheads	$A 34.54
Less inedible by-products	
Hide	13.69
Other	10.49
Balance	10.36
Less edible by-products	6.13
Total Cost to Kill and Chill	4.23
Plus Costs associated with Exporting: Boning to FAS Insurance	34.16
Less By-Products of Boning	(7.21)
Cost to Kill (FAS)	31.18
Plus Port charges, marine insurance, documentation, bank charges, reject insurance etc.	0.22
Freight to U.S.A. (East & West Coast)	28.50
Cost to Kill (CIF)	67.33
Plus Cost of beast 81¢/kg. dressed weight	132.03
Total Cost CIF per head	199.36
per kg. dressed weight	1.22

Source: Report of Prices Justification Tribunal "Beef Marketing and Processing", December 1978.

2.1.4 Government policy effecting meat production

Meat production plays an important role in the Australian economy as indicated in section 2.1.1. However Australian government policy is not one of encouraging increases in such production in a subsidised manner as is the case in New Zealand. In fact many meat producers in Australia would argue that the Australian government encourages secondary industry to the disadvantage of primary industry. This is true in regard to import tariffs which protect local industry thereby making farm inputs more expensive. However such cost increases are offset to a degree via subsidies on fertilizer, farm improvements (e.g. stock water facilities) and certain taxation advantages. These subsidies however are not excessive and probably only partially offset cost increases forced upon primary producers via decisions in other areas.

2.2 Australian Meat Production Statistics 1967/68 - 1977/78

2.2.1 Background to Australian carrying capacity

The rate of increase in the numbers of sheep and cattle is closely related to the carrying capacity of pastures throughout Australia. The carrying capacity of pastures is dependent upon the rate of increase in improved pastures, the level of fertilizer application to pastures, and most importantly, to seasonal conditions. Table 2.4 summarises the change in stocking rate, improved pastures and fertilizer usage between 1967/68 and 1976/77.

From 1967/68 through to 1975/76 stocking rate increased by 29 per cent. However during 1976/77 stocking rate declined 6.9 per cent. This dramatic drop in stocking rate was the result of drought conditions throughout many areas of Australia which was accentuated by a significant price-induced decline in fertilizer use on pastures since 1974/75 and little increase in the area of sown pastures since the late 1960's. This reduction in investment in feed supply occurred at a time of rapidly increasing feed demand so that by the end of 1975/76, when stocking rates were at record levels, the feed supply-feed demand

Table 2.4

Australian Stocking Rate, Improved Pastures and Fertilizer Usage 1967/68 to 1977/78

Year	Area under sown grasses & clovers ('000 ha)	Area top-dressed and seeded ('000 ha)	Sown and native pasture fertilized ('000 ha)	Superphosphate used on sown and native pasture ('000 tonnes)	Stocking rate in DSE*
1967/68	23,172	4,249	16,475	2,367	314.9
1968/69	24,189	3,836	14,679	2,139	333.3
1969/70	26,228	4,158	16,218	2,352	350.7
1970/71	28,043	3,306	14,944	2,093	365.4
1971/72	27,705	2,795	13,296	1,896	373.7
1972/73	26,130	3,359	15,256	2,233	364.1
1973/74	27,219	4,870	17,994	2,708	382.6
1974/75	28,582	3,378	14,484	2,077	404.1
1975/76	27,709	1,164	8,568	1,031	406.4
1976/77	26,244	1,381	10,007	1,166	378.2
1977/78	n.a.	n.a.	n.a.	n.a.	357.2

Source: Australian Bureau of Statistics

n.a. Not available.

*DSE = Dry Sheep Equivalents calculated by assigning 7.7 units to cattle and 1 to sheep.

relationship was in a very precarious position. The drought conditions of 1976/77 was all that was needed to expose the situation and force a large reduction in numbers of livestock. During 1977/78 stocking rate declined by 5.5 per cent making a total decline of 12.4 per cent in two years.

A sheep industry survey undertaken by the Agricultural Business Research Institute in November 1977 in the eastern states of Australia found that 70 per cent of respondents were stocked to capacity, 22 per cent understocked and 8 per cent overstocked. This survey also found that respondents were

planning significant increases in fertilizer applications. Thus in the sheep and mixed sheep-cattle-cropping areas feed supply and feed demand were approximately in balance but these areas are now becoming increasingly understocked due to improved seasonal conditions, the continued heavy selling of cattle in particular during 1978/79 and due to the benefits of fertilizer applied to pasture once again after a period of low applications.

In contrast to Southern Australia, the specialised beef-producing areas of Northern Australia are overstocked. Cattle numbers in Queensland and the Northern Territory are at near record high levels. Over the last three years, cattlemen in these areas have been forced by very low incomes to let pastures deteriorate thus worsening the overstocked situation. Thus as market outlets for this beef improve so will the turnoff of cattle. It is estimated that a 10 per cent decline in cattle numbers as at March 31, 1978 is required in these northern areas before feed supply and demand are in balance.

Thus it is anticipated that stock build up will occur in Southern Australia while the reverse situation will occur for at least two years in Northern Australia. This situation has very important implications as to the direction of growth in Australian livestock industries.

2.2.2 Sheep production statistics

Sheep numbers in Australia have fluctuated widely over the last ten years from a flock of 180 million in 1970 to a flock of 131 million in 1978 (see Appendix I for a summary of the size and structure of the Australian flock over the last ten years). This flock is still essentially a wool producing flock with 75 per cent of all sheep being of the Merino breed which has been developed for wool production (see Appendix II for a summary of breeds of sheep in the Australian flock). Approximately 48 per cent of the flock are ewes which have a lambing percentage of about 63 per cent of which about one third are slaughtered as lambs (see Appendix III for a summary of lambing returns from the Australian flock). Thus the sheepmeat production from the Australian flock

is low compared with other national flocks such as in New Zealand. New Zealand, which has only 40 per cent of Australia's sheep numbers, produces 36 per cent more lamb and nearly as much sheepmeat as Australia.

Changes in sheep numbers and slaughter rates over the last twelve years are shown in Table 2.5.

Table 2.5

Sheep and Lambs Slaughtered 1966/67 to 1977/78

Year ending 31st March	No. of sheep and lambs ('000)	% Change	No. of sheep slaughtered ('000)	% of opening no. slaughtered	No. of lambs slaughtered	% of opening no. slaughtered
1966/67	164,237	+ 4.24	18,521.9	11.76	14,375.6	9.12
1967/68	166,912	+ 1.63	22,240.9	13.54	15,429.1	9.39
1968/69	174,605	+ 4.61	17,434.9	10.45	17,994.3	10.78
1969/70	180,080	+ 3.12	21,383.5	12.26	19,438.0	11.14
1970/71	177,792	- 1.27	22,667.7	12.59	21,195.0	11.77
1971/72	162,910	- 8.37	30,456.4	17.13	21,741.9	12.23
1972/73	140,029	- 14.04	26,960.0	16.55	19,999.5	12.28
1973/74	145,175	+ 3.67	12.566.3	8.97	14,567.5	10.40
1974/75	151,653	+ 4.46	11,494.4	7.92	15,462.5	10.65
1975/76	148,643	- 1.98	15,595.7	10.28	15,644.0	10.31
1976/77	135,350	- 8.9	17,835.2	12.00	15,783.6	10.62
1977/78	131,442	- 2.9	13,896.8	10.57	15,245.1	11.26

Source: Australian Bureau of Statistics.
March 31st ending year.

The changes in sheep numbers and slaughter rates over time are the results of sheepmen responding to economic pressures and/or seasonal conditions. For example the very large drop in sheep numbers in 1972/73 was the product of a prolonged downturn in the economic performance of sheep at a time when the economic performance of cattle was very good and seemed to be getting better. Thus the average sheep producer decided to reduce sheep numbers and build up cattle numbers with a consequent high slaughter rate of sheep and lambs and a dramatic reduction in sheep numbers. In 1973/74 the cattle market crashed and there was an increase once again in sheep numbers.

As mentioned in section 2.2.1 of this report, total stock numbers in Australia continued to rise after 1974 and reached record levels in 1975/76. Cattle prices remained very low during this time however sheepmeat prices began to improve during 1976 with the emergence of the Middle East as a major market for Australian sheepmeats and livesheep. During 1976 and 1977 drought conditions existed over wide areas of Australia, particularly southern Australia forcing a reduction in stock numbers. This resulted in a significant drop in sheep and cattle numbers during 1976, 1977 and 1978. Slaughter rates for sheep averaged between 10-12 per cent of opening number and for lambs 10-11 per cent of opening number. While sheep numbers were still relatively low in 1976 compared with numbers in the early 1970's producers continued to sell their sheep because of drought conditions, or their need for a cash flow, until 1978. In the census of March, 1978 Australia recorded the smallest flock size since 1955.

The movement in sheep numbers over the last eleven years is shown in Table 2.6.

The rise in live sheep exports over recent years can be seen under net exports. The estimated sheep deaths has ranged from 10 per cent to 4.7 per cent of opening numbers. Deaths being higher as would be expected during periods of drought.

Table 2.6

Sheep and lambs: analysis of movement in numbers: Australia ('000)

Year at 31 March	Number at beginning of season	Lambs marked	Net Exports	Sheep and lambs slaughtered (a)	Estimated deaths on farms (b)	Number at close of season
1966	157,563	47,830	337	33,350	7,469	164,237
1967	164,237	50,648	362	38,145	9,466	166,912
1968	166,912	51,171	361	35,676	7,441	174,605
1969	174,605	56,784	487	41,045	9,777	180,080
1970	180,080	53,909	768	43,971	10,963	178,287
1971	177,792	51,705	807	52,659	13,121	162,910
1972	162,910	39,787	1,135	46,960	14,573	140,029
1973	140,029	42,961	1,060	26,541	10,215	145,175
1974	145,175	46,232	1,350	26,618	11,786	151,653
1975	151,653	44,121	1,779	31,339	14,013	148,643
1976	148,643	38,379	3,009	33,619	15,044	135,350
1977	135,350	39,505	4,124	29,844	9,337	131,442

(a) Includes estimates of animals slaughtered on farms as well as statistics from abattoirs.
(b) Balance figure excludes lambs which died before marking.

Source: Australian Bureau of Statistics.

Lamb production over the last eleven years is shown in Table 2.7.

Table 2.7

Lamb production 1966/67 to 1976/77

Year ending 31st March	Opening breeding ewe no. ('000)	Ewes as a % of all sheep	Lambs marked ('000)	Lambing % of ewe no.	% of lambs slaughtered	Lamb production ('000 tonnes)	Carcass Weight (kg)
1966/67	73,626	46.7	47,830	53.0	30.1	228.8	15.92
1967/68	76,618	46.7	50,648	66.1	30.5	238.6	15.46
1968/69	77,872	46.7	51,171	65.7	35.2	291.2	16.18
1969/70	83,607	47.9	56,784	67.9	34.2	312.1	16.06
1970/71	85,474	47.5	54,512	63.1	38.9	340.6	16.07
1971/72	84,581	47.5	51,705	61.3	42.0	343.9	15.82
1972/73	75,611	46.4	39,817	52.6	50.2	305.4	15.27
1973/74	68,687	49.0	42,962	62.5	33.9	242.1	16.62
1974/75	70,035	48.2	46,232	66.0	33.4	261.3	16.90
1975/76	70,647	46.6	44,122	62.5	35.5	250.1	16.37
1976/77	68,473	46.1	38,379	56.0	41.1	254.8	16.14
1977/78	64,742	47.8	39,505	61.0	38.5	249.9	16.45

Source: Australian Bureau of Statistics.

Lamb production has ranged between 344,000 tonnes and 229,000 tonnes. Lamb production is the result of the structure of the flock (especially the percentage of ewes in the flock), lambing percentage and the percentage of lambs slaughtered. As can be seen in Table 2.7 the percentage of the ewes in the flock has remained reasonably consistent at around 48 per cent.

After quick reductions in the size of the flock, the percentage of ewes in the flock increases. The lamb marking percentage is largely the result of seasonal conditions. If seasonal conditions are good during joining and lambing, the lambing percentage will be up as was the case in 1969/70. The percentage of lambs slaughtered is influenced by the stage of the sheep cycle. If the national flock is declining lamb slaughter rates are usually high and vice versa. It is also influenced by the desire of sheep producers to produce lamb rather than wool or mutton.

Mutton production over the last eleven years has ranged between 588,000 tonnes and 228,000 tonnes. This can be seen in Table 2.8.

Table 2.8

Mutton Production 1966/67 to 1977/78

Year Ending 31st March	Mutton (a) ('000 tonne)	Carcass Weight (kg)
1966/67	364.8	19.70
1967/68	423.3	19.03
1968/69	346.7	19.89
1969/70	430.4	20.13
1970/71	438.5	19.34
1971/72	588.0	19.31
1972/73	496.7	18.42
1973/74	248.2	19.75
1974/75	233.0	20.27
1975/76	305.4	19.58
1976/77	331.4	18.69
1977/78	227.7	18.06

(a) Excludes offal

Source: Australian Meat and Livestock Corporation.

The level of mutton production is influenced by the size of the flock and by the stage of the sheep cycle. During a declining phase, mutton production is high relative to the size of the flock as was the case in the early 1970's. When numbers are expanding mutton production declines as was the case in 1973/74 and 1974/75. However because the productive life of a sheep is usually only about six years, any decline in mutton production is not prolonged because after two or three years of an expansion phase the number of slaughterable cast-for-age stock increases thus causing mutton production to rise.

2.2.3 Cattle production statistics

During the period from 1967 to 1976 the Australian cattle herd increased from 18 million head to 33.4 million head which represented the fastest sustained rate of growth in the industry's history. Since 1976 cattle numbers have begun to decline and in March 1979 were estimated at 27 million. Appendix IV gives a summary of the size and structure of the Australian herd over the last twelve years.

While total cattle numbers were rising until 1977, the number of cattle used for milk production has consistently declined each year from 25 per cent of all cattle in 1967 to 10.4 per cent of all cattle in 1978. This trend is likely to continue.

Change in cattle numbers and slaughter rates of cattle over the last twelve years are shown in Table 2.9.

The rate of increase in cattle numbers was greatest in the early 1970's when the economic performance of cattle was very good. It was also one of the few periods in Australia when cattle were generally as profitable as sheep. In December 1973 cattle prices in Australia reached a peak.

Table 2.9

Australian cattle industry statistics
1967/68 to 1976/77

Years ending 31st March	Total cattle ('000)	% Change in total	Calves & cattle slaughtered ('000)	% of opening no. slaughtered	Production ('000 tonnes carcass wt)	Slaughter index (kg) (a)
1966/67	18,270	+ 1.9	6,002.6	33.5	923.4	153.8
1967/68	19,218	+ 5.2	5,735.0	31.4	912.8	159.2
1968/69	20,606	+ 7.2	5,439.4	28.3	899.9	165.4
1969/70	22,162	+ 7.6	5,833.4	28.3	989.5	169.6
1970/71	24,373	+ 10.0	5,796.0	26.1	1,007.7	173.9
1971/72	27,373	+ 12.3	6,232.4	25.6	1,112.5	178.5
1972/73	29,101	+ 6.3	7,896.4	28.8	1,487.6	188.4
1973/74	30,839	+ 6.0	7,599.8	26.1	1,390.9	183.0
1974/75	32,793	+ 6.3	7,367.8	23.9	1,372.0	186.2
1975/76	33,434	+ 1.9	9,702.8	29.6	1,725.6	177.8
1976/77	31,533	- 5.7	11,536.1	34.5	1,910.4	165.6
1977/78	29,325	- 7.0	12,548.8	39.8	2,125.4	169.3

(a) Beef and veal produced ÷ No. slaughtered.

Source: Australian Meat and Livestock Corporation.

As an example of prices, fat yearling steers were selling for 50¢/kg liveweight at this time, however by December 1974 prices for this category of cattle had fallen to about 20¢/kg liveweight. A 60 per cent fall in prices in one year caused most cattlemen to continue to increase the size of their herds because they did not wish to accept a loss for their product.

In the hope of a turn around in the beef market they continued to increase the size of the Australian herd until the droughts of 1976 and 1977. Poor seasonal conditions and an improvement in domestic beef prices caused an increase in the slaughter of cattle and a consequent sharp reduction in the size of the herd since 1976. This reduction has occurred mostly in southern areas of Australia where beef production is oriented towards the domestic market. The herd in northern Australia, which produces beef mainly for the export market was still at near record high levels in the March 1978 census. As explained in Section 2.2.1 of this report it is estimated that a 10 per cent decline in cattle numbers as at March 31st 1978 is still required in these northern areas before stocking rates are returned to realistic levels.

As can be seen in Table 2.10, the slaughter rate is, as one would expect, related to the rate of change in the size of the herd.

Table 2.10

Relationship between rate of herd increase and slaughter rate

Year ending 31st March	% increase in total herd (A)	% of opening no. slaughtered (B)	Productivity index (A & B)
1966/67	+ 1.9	33.5	35.4
1967/68	+ 5.2	31.4	36.6
1968/69	+ 7.2	28.3	35.5
1969/70	+ 7.6	28.3	35.9
1970/71	+ 10.0	26.1	36.1
1971/72	+ 12.3	25.6	37.9
1972/73	+ 6.3	28.8	35.1
1973/74	+ 6.0	26.1	32.1
1974/75	+ 6.3	23.9	30.2
1975/76	+ 1.9	29.6	31.2
1976/77	- 5.7	34.5	28.8
1977/78	- 7.0	39.8	32.8

The productivity index, which is the total of the per cent increase in the herd and per cent slaughtered, was relatively stable between 1966/67 and 1972/73 ranging between 35.1 and 37.9. During this time the 'Productivity Index' was relatively high due to good husbandry and consequent reasonable calving percentages and low death rates. However with the collapse of beef prices in 1973/74, the 'index' fell abruptly, reflecting lower calving percentages (and increased speying) and high mortalities as a result of increased stocking rates, generally poorer animal husbandry and drought conditions.

Beef production as shown in Table 2.9 for the last twelve years has varied from 900,000 tonnes carcass weight to 2,123,100 tonnes carcass weight. The 2.1 million tonnes produced in 1977/78 is an Australian record.

2.3 Australian Meat Consumption and Export Statistics

2.3.1 Consumption of mutton and exports of mutton and live sheep 1967/68 to 1977/78

Table 2.11 summarises mutton consumption and exports over the last eleven years.

Domestic consumption of mutton remained reasonably steady at about 19 kg per head during the 1960's and early 1970's. With the increase in beef supplies from 1973 and especially following the beef price crash of 1974, beef increasingly was substituted for mutton so that between 1972 and 1977 mutton consumption fell from 19 kg per head to 4 kg per head. As a consequence export availability of mutton dramatically increased to such an extent that 87 per cent of all mutton production was exported in 1976/77. This compares with exports during the 1960's and early 1970's of about 50 per cent of production.

Table 2.11

Production, consumption and exports of mutton

('000 tonnes)

Year ending 30th June	Production (carcass weight) Tonnes	Export (carcass weight) Tonnes	Consumption (carcass weight) (a)	Per head kg	% Exported
1966/67	355.2	138.9	219	19	39.1
1967/68	418.9	187.6	225	19	44.8
1968/69	371.9	144.6	219	19	38.9
1969/70	441.5	233.7	206	17	52.9
1970/71	470.5	224.0	241	19	47.6
1971/72	596.4	353.0	241	19	59.2
1972/73	435.2	281.9	160	12	64.8
1973/74	221.4	123.0	104	8	55.6
1974/75	250.5	145.8	101	8	58.2
1975/76	325.5	223.8	91	7	68.7
1976/77	308.6	268.9	50	4	87.1
1977/78	276.7	232.1	45	4	83.8

(a) Residual after adjustments for stock of mutton.

Source: Australian Meat and Livestock Corporation.

Exports of mutton since 1966/67 to major destinations are shown in Table 2.12. The value of mutton exports are shown in Appendix.V.

Japan has been the major destination for mutton exports since 1967. In recent years mutton exports to Japan have exceeded 50 per cent of all exports. Mutton in Japan is used principally in their meat processing industry, in competition with other sources of protein, such as horse meat,

Table 2.12

Exports of mutton by destinations Year ended June: % of total exports

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Japan	34.0	38.5	29.8	32.4	30.9	35.1	51.2	44.2	57.0	61.4	54.2	54.8
Korea	-	-	-	-	-	-	-	-	-	-	7.6	15.3
Malaysia/Singapore	3.2	2.6	3.8	2.8	3.0	2.4	2.0	3.6	3.7	3.2	2.3	2.8
Iran			2.6	5.8	.1	-	3.5	9.8	3.6	7.2	7.8	11.5
Kuwait & Gulf States	5.2	3.1	3.6	2.3	3.1	3.1	4.3	5.5	8.7	8.0	8.6	7.2
Other Middle East			-	-	-	-	.1	3.9	1.9	-	1.1	-
U.K.	6.4	7.5	5.4	7.9	11.7	7.5	7.4	5.5	7.4	4.8	3.9	2.7
U.S.S.R	0	0	0	3.8	22.8	4.1	0	0	0	0	9.9	0
U.S.A.	27.6	29.7	28.3	17.1	8.1	12.2	6.9	3.1	-	-	0	0
Canada	16.2	14.8	22.4	21.2	2.4	9.8	9.5	15.0	9.4	5.1	1.9	2.1
Other Destinations	7.4	3.8	4.1	6.7	17.9	25.8	15.1	9.4	8.3	10.3	2.7	3.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Australian Meat and Livestock Corporation.

pork and cheap beef. Consequently, Australian mutton exports to Japan vary from year to year in relation to supply and demand and the various price differentials between these substitutes in Japan.

Australian exports of live sheep have emerged as an important market outlet in recent years. Table 2.13 shows live sheep exports by destinations since 1970. Between 1970 and 1978 live sheep exports for slaughter have risen from 490,000 head to 4,963,000 head. All of this increase has resulted from increased Middle East demand, especially from Iran.

Table 2.13

Australian livesheep exports for slaughter
12 months ended June ('000 head)

Destination	1970	1971	1972	1973	1974	1975	1976	1977	1978
Iran	56	268	424	379	536	813	915	1,737	2,853
Kuwait	148	272	329	409	294	430	600	718	992
Bahrain	-	5	-	8	4	8	4	71	34
Qatar	-	1	-	25	34	26	23	105	111
Dubai	-	-	-	8	32	23	2	70	6
Saudi Arabia	1	24	9	-	-	31	75	486	706
Other	-	7	-	-	-	9	-	170	144
Total Middle East	205	587	762	829	900	1,340	1,669	3,357	4,846
Singapore		175	195	134	91	107	121	143	110
Malaysia				19	7	6	7	7	6
Mauritius		2	3	2	1	2	1	1	1
France		-	29	6	-	-	17	-	-
Total Other	285	177	227	161	99	115	146	151	117
Total All	490	764	989	989	999	1,455	1,815	3,508	4,963

Source: Australian Meat and Livestock Corporation.

The Middle East countries have a population of 120 million, which is increasing at 3.8 per cent per year and are traditional consumers of sheepmeat. With rising affluence resulting from their oil wealth, demand for sheepmeats has dramatically increased. Lack of infrastructure, particularly freezing capacity and a tradition of eating fresh meat has resulted in much of this increased demand being supplied from Australia in the form of live sheep. Although young sheep are favoured for slaughter, because of the economics associated with the shipping of heavy-weight wethers, most of the live sheep leaving Australia for the Middle East are of the latter type. Lamb is the most favoured frozen meat in the Middle East. The Middle East is emerging as Australia's top outlet for sheepmeat.

2.3.2 Consumption and exports of lamb

Table 2.14 summarises lamb consumption and exports over the last eleven years. Most of Australian lamb production is consumed internally. In recent years per head consumption of lamb has declined from 24 kg in the early 1970's to 14 kg in 1977/78. This is a direct result of cheap beef being substituted for lamb. This has allowed a greater percentage of declining total production to be exported principally to a very interested Middle East market.

Table 2.14

Production, consumption and exports of lamb ('000 tonnes)

Year ending 30th June	Production (carcass weight)	Exports (carcass weight)	Domestic consumption (carcass wt) (a)	Per head kg	% Exported
1966/67	240.9	17.6	226	19	7.3
1967/68	245.6	11.2	234	20	4.6
1968/69	308.8	35.5	264	22	11.5
1969/70	313.5	47.8	258	21	15.2
1970/71	354.8	53.1	301	24	15.0
1971/72	360.0	42.8	315	24	11.9
1972/73	278.2	32.9	249	19	11.8
1973/74	235.2	22.8	212	16	9.7
1974/75	269.3	26.3	241	18	9.8
1975/76	262.2	35.7	225	16	13.6
1976/77	243.3	43.4	204	15	17.8
1977/78	250.7	50.6	208	15	20.2

(a) Residual after an allowance for adjustments in stocks of lamb.

Source: Australian Meat and Livestock Corporation.

Exports of lamb since 1966/67 to major destinations are shown in Table 2.15. The values of lamb exports are shown in Appendix VI.

The Middle East, and in particular Iran, is now Australia's major market for lamb thus replacing the traditional market in the United Kingdom. This trend is likely to continue into the foreseeable future.

Table 2.15

Exports of lamb by destinations year ended June

% of total exports

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Japan	4.9	11.4	0.6	0.8	0.8	1.2	0.9	0.4	0.7	1.4	1.5	.5
Malaysia/Singapore	1.9	1.4	0.1	0.5	1.0	1.6	1.4	1.8	1.6	0.7	0.8	.5
Iran					3.2		0.2	0.1	41.1	60.0	61.0	48.9
Kuwait & Gulf States	1.0	2.8	0.9	0.8	0.9	2.3	3.2	2.2	14.6	9.7	13.4	34.4
Other Middle East	1.0			0.1	0.1	1.0	0.1	0.3	2.9	9.7	8.8	4.1
U.K.	29.0	34.1	45.2	40.6	42.1	40.3	50.0	63.1	15.7	2.8	4.1	1.2
U.S.A.	8.2	15.9	26.4	24.1	31.3	21.6	11.6	12.0	9.9	10.1	5.2	6.1
Canada	39.7	20.2	21.5	27.3	14.3	18.9	11.5	16.0	7.3	2.5	3.2	2.3
Other Destinations	14.3	14.2	5.3	5.8	6.3	13.1	21.1	4.1	5.9	3.1	2.0	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Australian Meat and Livestock Corporation.

2.3.3 Consumption and exports of beef and veal

Consumption and exports of beef and veal over the last eleven years are shown in Table 2.16.

Table 2.16

Production, Consumption and Exports of Beef and Veal ('000 tonnes)

Years ended 30th June	Production (carcass weight)	Exports (carcass weight)	Apparent Domestic consumption (carcass weight)	Per head consumption (kg) (carcass weight)	% Exported
1966/67	898.6	386.8	453	39	44.0
1967/68	903.9	400.9	486	41	44.4
1968/69	934.8	411.3	501	41	44.0
1969/70	1,010.4	508.1	495	40	50.3
1970/71	1,047.3	516.2	530	41	49.3
1971/72	1,167.9	636.2	521	40	54.5
1972/73	1,437.9	884.4	550	42	61.5
1973/74	1,310.0	738.8	590	45	56.4
1974/75	1,533.8	648.1	875	65	42.3
1975/76	1,840.4	846.0	963	70	46.0
1967/77	1,933.6	1,019.4	968	69	51.3
1977/78	2,125.1	1,167.6	931	66	53.0

Source: Australian Meat and Livestock Corporation.

Per head consumption of beef in Australia has dramatically increased since the cattle market crash of 1974. In the 1960's and early 1970's consumption averaged about 40 kg, however it has increased to 65-70 kg per head in recent years. This increase in consumption has helped to dispose of the large increase in beef production during most of the 1970's. Thus exports as a percentage of total production has remained fairly constant at around 50 per cent.

Exports of beef and veal by major destinations are shown in Table 2.17. The values of such exports are shown in Appendix VII. The United States of America has consistently been the major market for Australian beef. However it is an outlet principally for manufacture-quality beef. Japan has been an important market for table quality beef. The beef price crash in Australia in 1974 was the result of a significant drop in beef prices in the United States of America together with the introduction of export quotas in the traditional markets of the USA, United Kingdom and Japan. Australia's beef production continued to increase during 1976 and 1977 as the rate of herd build-up subsided and to dispose of growing stocks of carcass beef Australia was forced to develop alternative markets. These have principally been the U.S.S.R., Eastern Europe, Egypt, South Korea and the Middle East.

2.4 Australian Meat Exports to Central West Africa

Central West Africa consists of Dahomey, Ghana, Ivory Coast, Liberia and Togo. They have not been important markets for Australian meat. Since 1967 there have been no Australian meat shipments to Togo, only very small shipments of processed meat to Dahomey and the Ivory Coast and limited shipments to Ghana and Liberia. In the late 1960's and early 1970's Ghana

Table 2.17

Exports of beef and veal by major destinations year ended June

% of total exports

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
U.S.A.	72.5	78.3	80.2	69.9	62.0	65.4	53.8	61.8	68.7	54.8	39.0	46.6
U.K.	16.3	9.9	5.4	8.3	9.3	10.4	17.8	8.8	3.4	1.5	1.2	1.6
Sweden	0.5	0.3	0.5	0.4	0.3	0.3	0.5	0.3	1.3	2.0	1.1	1.2
Greece	0.4			0.1		0.2	1.5	0.6	0.5	1.7	0.3	-
Eastern Europe					0.3		0.6	0.7			9.6	4.7
Other Europe	0.2	0.1	0.1	0.2	0.2	0.1	0.7	0.4	0.3	0.3	0.7	.9
U.S.S.R.				4.7	7.5	2.3		-	2.3	4.6	10.3	4.3
Canada	1.5	1.6	3.7	7.6	6.5	5.1	4.7	5.8	6.7	7.0	5.7	3.5
Caribbean	0.8	0.4	0.5	0.6	1.0	0.9	0.9	0.4	0.8	2.0	3.3	1.7
Japan	2.9	4.7	5.6	4.9	9.0	11.2	15.0	16.9	1.9	11.9	11.0	9.4
Okinawa	0.6	1.1	1.0	0.7	0.8	0.7	0.6	0.6	0.8	0.5	0.5	.4
Kuwait & Gulf States	0.3	0.3	0.4	0.3	0.4	0.3	0.3	0.5	0.7	1.0	1.8	2.6
Hong Kong	0.1	0.1	0.1		0.1	0.1		0.2	0.8	1.2	2.0	1.6
Singapore/Malaysia	1.2	0.9	1.0	0.7	0.7	0.8	0.4	0.8	1.3	1.5	1.7	2.0
Philippines	0.4	0.4	0.3	0.3	0.1	0.1			1.7	1.0	1.4	1.6
Iran								0.1	0.2	0.4	1.3	2.0
Other Countries	2.3	1.8	1.2	1.3	1.8	2.1	3.1	2.1	8.5	8.6	9.1	15.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Australian Meat and Livestock Corporation.

did import reasonable quantities of mutton and lamb. Lamb shipments to Ghana at that time constituted between 1-3 per cent of total lamb exports. However since 1974 virtually no meat has been exported to Ghana. Since 1972 Liberia has been importing beef ranging between 50 and 150 tonnes per year. Also very small quantities of veal, mutton, lamb and offal. Full details of meat exports for each of these countries are shown in Appendix VIII, IX, X and XI.

Table 2.18 summarises total Australian meat shipments to Central West Africa since 1967. These shipments are insignificant when considered in relation to total Australian meat exports.

Table 2.18

Australian meat exports to Central West Africa

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Beef and veal shipped tonnes	66.9	8.4	11.7	8.1	24.9	38.9	68.1	38.4	59.9	128.5	72.2
% of total beef and veal exports	0.03	0.003	0.004	0.002	0.01	0.01	0.01	0.01	0.01	0.02	0.01
Mutton shipped tonnes	85.2	57.4	0.0	68.0	23.5	5.7	13.3	1.6	2.4	6.8	0.0
% of total mutton exports	0.11	0.06	0.0	0.05	0.02	0.003	0.01	0.002	0.003	0.005	0.0
Lamb shipped tonnes	182.5	260.5	524.1	1080.8	837.9	493.6	135.7	4.2	18.9	12.1	0.0
% of total lamb exports	1.26	2.97	1.76	2.64	1.92	1.35	0.47	0.02	0.08	0.04	0.0
Total meat shipment tonnes	339.3	348.5	536.3	1156.9	1034.3	540.1	247.6	47.4	83.7	156.2	72.2
% of total meat exports	0.09	0.08	0.13	0.20	0.18	0.08	0.03	0.007	0.01	0.02	0.007

2.5 Shipping Arrangements between Australia and West Africa

There is no direct shipping service from Australia to West Africa for frozen goods. Shipments can be made by transhipping via the East Coast of U.S.A., Hong Kong or Tilbury, or by charter. To ship with Farrell Lines via Norfolk, Virginia costs US$4,736 per container. A container will take 15 tonnes of cartons or 8 tonnes of carcass. Thus this method is very expensive and it is also very time consuming.

The principal company exporting Australian meat to Central West Africa is Uki Meat Industries Pty Ltd of Sydney. Mr Paul Hewston of this company said they shipped via chartered small vessels taking 1,100 to 1,600 tonnes. The cost ranged from A$250 to A$400/tonne depending on time of shipment and destination. He said shipping was their major problem although non payment for shipments and infrastructural problems in the importing countries were also major obstacles. He did not see these markets as being of any great importance to Australia. He thought there may be some improvement with the rise in world oil prices. Nigeria produces oil and apparently Ghana has also recently discovered some small quantities of oil.

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3. PROJECTED AUSTRALIAN MEAT EXPORTS 1978/79-1984/85

3.1 Background Research to Meat Projections

During 1977 and early 1978 the Agricultural Business Research Institute directed a large research programme designed to assess the future meat production potential of Australian grazing industries. The study was particularly concerned with the ability of Australia to supply sheepmeat to the Middle East. The study involved extensive attitudinal surveys of Australian sheep producers, the use of two large computer models designed to simulate Australian agriculture and in particular Australian grazing industries, and the use of linear programming models to evaluate farm plans within important grazing regions of Australia.

The attitudinal survey of sheep producers was conducted throughout Eastern Australia during November 1977. Holdings in the survey were randomly chosen and numbered 800 or 2 per cent of the total population of landholders with 500 sheep or more in the states of Queensland, N.S.W., Victoria, South Australia and Tasmania. The only sheep area not covered was Western Australia, however the conclusions drawn from the survey are thought to be a good reflection of attitudes in Western Australia and thus for the whole of Australia.

The most important conclusion reached from the survey was that sheep producers in all areas are planning to rebuild their sheep flocks and reduce their cattle herds. In fact they were planning to increase sheep numbers by 13 per cent and to reduce cattle numbers by 11 per cent by 1980. Accompanying this overall increase in sheep numbers was a small planned swing away from merino to dual purpose sheep. This swing involved a 1.3 per cent increase of dual purpose sheep in the 1980 composition of the flock compared with the 1977 situation. This swing was also reflected in the major sheep enterprise choice where the survey found a planned swing of 3 per cent out of sheep breeding for wool into first class lamb

production and wether production; this move being a response to the needs of the Middle East market for lamb and heavy wethers. Also the survey showed a planned increase in lamb marking percentages. This partly reflected the planned greater use of more fertile dual purpose ewes relative to merino ewes but probably also reflected a planned improvement in sheep husbandry.

As this survey did not include the specialised cattle producing areas of northern Australia, the planned cattle reduction figure of 11 per cent is only a reflection of attitudes in the mixed sheep-cattle areas of southern Australia.

However, as most southern areas do in fact run sheep and cattle together the survey certainly strongly suggests a movement out of cattle into sheep in these areas. The planned increase in sheep numbers and decrease in cattle numbers would result in an overall increase in stocking rate pressure of 2.5 per cent by 1980 over 1977 levels. This increase does appear to be a realistic objective.

The computer models of Australian agriculture used in the study were firstly one developed by the Bureau of Agricultural Economics in Canberra and secondly one developed by the Department of Agricultural Economics and Business Management at the University of New England. The latter model is known as the Aggregative Programming Model of Australian Agriculture (APMAA) and was developed by a team led by Professor J.L. Dillon.

Both models projected increased Australian sheepmeat production at the expense of beef production by 1981. The Bureau of Agricultural Economics model projected a move away from wool production towards sheepmeat production with associated increases in lambing percentages and lamb slaughter. The APMAA model which did not provide the same flexibility as to change within enterprises, projected a 13.9 per cent increase in ewe breeding units

and a decrease in cattle breeding units of 11 per cent by 1981. Thus both models which make projections under the assumption of profit maximization, concluded in a similar fashion to the attitudinal survey.

The linear programming evaluations of farm plans were conducted in three major mixed sheep and cattle producing regions of Australia. They used 1977 livestock values and costs and concluded that sheepmeat production, especially lamb production, was the most profitable activity in these areas.

Since 1977 the profitability of cattle enterprises has improved more rapidly than for sheep enterprises so that by early 1979 the difference in profitability between the two wasn't as great although it still favoured sheep. Thus it is expected that the move into sheep will not now be as rapid as projected in 1977.

3.2 Projected Australian Stocking Rate

Section 2.2.1 of this report concluded that at March 1978 southern areas of Australia tend to be understocked while northern areas tend to be overstocked. Since the last agricultural census in March 1978 slaughter rates of cattle have continued at near 1977/78 record levels implying a further 6.9 per cent reduction in cattle numbers by March 1979. The slaughter statistics suggest a greater decline in cattle numbers in southern Australia than in northern Australia. On the other hand sheep numbers are likely to show an increase of about 2 per cent in the March 1979 census. Sheep are located in southern Australia. The overall likely affect on stocking rate as at March 1979 is that southern areas of Australia are likely to be understocked while northern Australia will be still overstocked with cattle. Thus in southern areas cattle numbers are expected to stabilise while sheep numbers are expected to increase during 1979/80 while in northern Australia cattle numbers are expected to decline over the same period of time. However from March 1979 it is projected that total Australian stocking rate will rise each year through to 1985 assuming average seasonal conditions.

A summary of the projected stocking rate is shown in Table 3.1.

Table 3.1

Projected Stocking Rate 1977/78 - 1984/85

Year	Cattle no. ('000)	% Change in cattle nos.	Cattle DSE ('000) (a)	Sheep No. ('000)	% Change in sheep nos.	Total DSE ('000)	% Change in Total DSE
1977/78	29,325	- 7.0	225,803	131,442	- 2.9	357,245	- 5.5
1978/79	27,272	- 6.9	209,994	133,600	+ 2.1	343,594	- 3.8
1979/80	26,999	- 1.0	207,892	137,845	+ 3.2	345,737	+ .6
1980/81	27,809	+ 3.0	214,129	140,538	+ 2.0	354,667	+ 2.6
1981/82	28,921	+ 4.0	222,692	141,975	+ 1.0	364,667	+ 2.8
1982/83	30,078	+ 4.0	231,601	143,070	+ .8	374,671	+ 2.7
1983/84	31,282	+ 4.0	240,871	144,208	+ .8	385,079	+ 2.8
1984/85	31,594	+ 1.0	243,274	144,217	0	387,491	+ .6

(a) 7.7 sheep = 1 beast.

3.3 Projected Exports of Mutton and Lamb

3.3.1 Projected production of mutton and lamb

The sheep statistics in Section 2.2.2 of this report show that sheep numbers have fallen to 131.4 million or the lowest level since 1955. It is now expected that sheep producers will start to build up the national flock once again until a sheep population of about 144 million is reached in 1985. The attitudinal survey results predicted a 13 per cent increase in sheep numbers by 1980 or an annual increase of 4.3 per cent per annum starting in 1977. The start of this increase was delayed by droughts in 1977. Also the significant improvement in the profitability of beef in 1978/79 relative to sheep is projected to slow down the rate of increase indicated by the 1977 survey. After 1980 the increase is expected to continue but at a slower rate

as landholders also begin to increase cattle numbers once again in response to the improved prices for beef.

Projected lamb production through to 1985 is shown in Table 3.2. It has been assumed in the projections that the percentage of ewes in the national flock and the lamb marking percentage increases slightly over historical levels. It is also assumed that the percentage of lambs slaughtered is kept as high as possible after allowing for deaths, ewe replacements and build up in numbers. The projected level of lamb production is expected to decline compared with present levels as producers retain lambs for restocking. Lamb production is not expected to increase significantly until stock numbers begin to stabilise. It should be pointed out that while these are best bet production estimates, Australia has the potential to produce much more lamb from present stock numbers if producers intensify production techniques. However it is expected that any changes that do take place will be gradual ones and thus in line with the assumptions used in these projections.

Projected mutton production through to 1985 is shown in Table 3.3. Production of mutton is expected to fall between 1978/79 and 1979/80 as producers strive to build up sheep numbers. From 1980/81 it is likely mutton production will increase once again.

The projected movement in livestock numbers over the next seven years is shown in Table 3.4. This table incorporates the slaughter rates embodied in Tables 3.2 and 3.3 and makes allowance for live sheep exports. The balancing figure in Table 3.3 is sheep deaths.

Table 3.2

Projected Lamb Production 1977/78 to 1984/85

Year ending 31st March	Opening no. of sheep & lambs ('000) (a)	% Change	Opening ewe no. ('000)	% breeding ewes in flock	Lamb marking % of breeding ewes	Lambs marked ('000)	% of lambs slaughtered	Lambs slaughtered ('000)	Carcass weight (kg)	Production tonnes ('000) (b)
1977/78	135,350	- 2.9	64,743	47.8	62.8	40,235	38.0	15,279	16.41	250.7
1978/79	131,442	+ 2.1	63,625	49.0	65.0	41,356	36.2	14,957	16.98	254.0
1979/80	133,600	+ 3.2	66,800	50.0	64.0	42,752	34.0	14,536	16.5	239.8
1980/81	137,845	+ 2.0	68,023	50.0	64.0	44,111	31.0	13,674	16.5	225.6
1981/82	140,538	+ 1.0	70,269	50.0	64.0	44,972	31.0	13,941	16.5	230.0
1982/83	141,975	+ 2.8	70,988	50.0	64.0	45,432	33.0	14,992	16.5	247.4
1983/84	143,070	+ 2.8	71,535	50.0	64.0	45,782	33.0	15,108	16.5	249.3
1984/85	144,208	0	72,104	50.0	64.0	46,146	33.5	15,459	16.5	255.1

(a) March 31st ending year.

(b) These production estimates are 'best bet' assessments. They are dependent on the proportion of ewes in the national flock, the average lamb marking percentage and the percentage of lambs that are slaughtered. The proportion of ewes in the flock is very much dependent on deliberate management decisions to increase ewe numbers relative to other stock. The lamb marking percentage is particularly influenced by seasonal conditions and in the past has been as high as 66% although the average is about 60%. The % of lambs slaughtered is influenced by the stage of the sheep cycle (if the national flock is declining lamb slaughter rates are usually high and vice versa) and by the desire of sheep producers to produce lamb rather than wool or mutton. It is assumed that season conditions are 'average' but that due to improved husbandry management and the use of dual purpose ewes that lambing percentage improves. It is expected that lamb production will also increase due to a greater percentage of breeding ewes being mated. Historically about 16% of breeding ewes have not been joined for various reasons.

Table 3.3

Projected Mutton Production 1977/78 to 1984/85

Year ending 31st March	Opening no. of sheep & lambs ('000)	% Change	% of opening no. slaughtered as sheep	No. of sheep slaughtered ('000)	Carcass Weight (kg)	Production (tonnes '000)
1977/78	135,350	- 3.0	10.8	14,488.4	18.95	274.5
1978/79	131,442	+ 2.1	8.8	11,600.0	19.69	228.4
1979/80	133,600	+ 3.2	8.0	10,688.0	19.5	208.4
1980/81	137,845	+ 2.0	10.0	13,784.0	19.5	268.8
1981/82	140,538	+ 1.0	11.0	15,459.0	19.5	301.5
1982/83	141,975	+ .8	11.0	15,617.0	19.5	304.5
1983/84	143,070	+ .8	11.0	15,737.0	19.5	306.9
1984/85	144,208	0	12.0	17,305.0	19.5	337.4

Table 3.4

Projected Movement in Sheep Numbers 1977/78 to 1984/85 ('000)

Year	Opening number	Lambs Marked	Live Exports	Sheep & Lamb slaughtered	Sheep deaths (a)	% of opening no. that die	Closing numbers
1977/78	135,350	40,641	4,963	29,767	9,871	7.3	131,442
1978/79	131,442	41,356	5,000	26,557	7,641	6.0	133,600
1979/80	133,600	42,752	5,000	25,224	8,283	6.2	137,845
1980/81	137,845	44,111	5,000	27,458	8,960	6.5	140,538
1981/82	140,538	44,972	5,000	29,400	9,135	6.5	141,975
1982/83	141,975	45,432	4,500	30,609	9,228	6.5	143,070
1983/84	143,070	45,782	4,500	30,845	9,299	6.5	144,208
1984/85	144,208	46,146	4,000	32,764	9,373	6.5	144,217

(a) Balance figure: excludes lambs which died before marking.

3.3.2 Projected exports of mutton and live sheep

As was explained in section 2.3.1 of this report per head consumption of mutton has dramatically declined from 19 kg to 4 kg in 1976/77. It is expected that as beef prices improve so will the domestic consumption of mutton. It is expected that domestic mutton consumption will stay at low levels until after 1980. During this time beef production is expected to be reasonably large while mutton production will be low by historical standards. Table 3.5 projects likely consumption and export availability of mutton.

Table 3.5

Projected Production, Consumption and Exports of Mutton

('000 tonnes carcass weight)

Year ending 31st March	Production	Domestic Consumption	Export Availability
1977/78	274.5	44.6	232.1
1978/79	203.6	50	153.6
1979/80	211.8	60	151.8
1980/81	305.8	100	205.8
1981/82	312.9	150	162.9
1982/83	320.4	160	160.4
1983/84	327.9	170	157.9
1984/85	366.2	180	186.2

The export availability of Australian mutton is expected to be less than 1977/78 levels through to 1985. As mutton production increases, domestic consumption is also projected to increase, keeping mutton exports at low levels.

Projected live exports of sheep are shown in Table 3.4. Live sheep exports are expected to eventually decline after 1981/82 as Middle East sheepmeat requirements are increasingly met by frozen or chilled carcasses rather than live sheep. It is expected that the present lack of freezing capacity, in particular in Middle East countries, will be overcome and that consumers will gradually become accustomed to frozen meat thus reducing the demand for live sheep.

3.3.3 Projected exports of lamb

Domestic consumption of lamb in Australia is currently at a low level by comparison with historic trends. It is expected that lamb will be more expensive than beef over the next few years and thus it is expected that domestic consumption of lamb will continue at about the present level as shown in Table 3.6. Export availability is calculated as a residual and it would appear that this will be relatively low through to 1985.

Table 3.6

Projected Production, Consumption and Exports of Lamb

('000 tonnes carcass weight)

Year ending 31st March	Production	Domestic Consumption	Export Availability
1977/78	250.7	200.1	50.6
1978/79	234.4	195	39.4
1979/80	229.4	200	29.4
1980/81	236.3	210	26.3
1981/82	241.9	215	26.9
1982/83	258.7	215	43.7
1983/84	264.7	220	44.7
1984/85	310.7	230	80.7

3.3.4 Projected export destinations for mutton and live sheep

Japan has been Australia's major customer for mutton and is expected to remain the major customer. However shipments to Japan are likely to decline over the next few years in line with the projected overall decline in Australian mutton exports. Demand for mutton in Korea has expanded rapidly over recent years and is expected to remain firm. Mutton is used in Korea, as is the case in Japan, for manufacture type uses. A significant proportion of Korea's processed meat production is shipped to Japan. Representatives of the Australian Meat and Live-Stock Corporation believe mutton exports to this part of the world to remain near present levels in percentage terms.

The Middle East demand for carcass mutton from Australia has been important. In 1977/78 18.7 per cent of all mutton exports went to the Middle East. However because of the political crises in Iran the rate of expansion in this market has been curtailed. In 1979 a reduction in shipments of mutton to Iran is expected although any such reduction is expected to be largely offset by increased sales to other countries of the region. Representatives of the Australian Meat and Live-Stock Corporation expect this market to continue to take approximately 20-30 per cent of mutton exports in the foreseeable future.

Thus mutton exports to Asia and the Middle East should account of approximately 90 per cent of Australian exports, at least over the medium term. The U.S.S.R. is a possible future opportunistic buyer of Australian mutton. Other small markets including the E.E.C. Canada should take the remaining exports.

Exports of mutton to West African destinations are expected to remain very small.

Projected mutton export destinations are shown in Table 3.7.

Table 3.7

Projected Exports of Mutton by Destinations
% of Total Exports

Destination	1978/79	1980/81	1984/85
Japan	55	53	50
Korea	10	12	15
Middle East	15	25	30
Other	20	10	5
	100	100	100

Middle East demand for live sheep imports for slaughtering is expected to begin to stabilize in 1979 after a very strong growth rate in recent years. This is expected to happen in the short term because of high Australian saleyard prices and strong competition from producers and meat exporters and civil disturbances in the principal market, Iran. In the longer term improved infrastructural facilities to handle frozen carcasses, increased supplies from suppliers of much cheaper 'Halal' slaughtered carcass meats, increased supplies from traditional markets in North Africa and the local preference for young sheep, especially lamb, will result in a decline in live sheep exports from Australia. Libya is also a buyer of live sheep but prefers young sheep. If available it could take up to one million Australian sheep.

3.3.5 Projected export destinations for lamb

The major market for Australian lamb is the Middle East. Consumers in these countries have shown an increasing preference for lamb relative to mutton and this is particularly so in Iran, Australia's principal lamb market. This trend should continue and strengthen. Until now Australia has had a relatively unchallenged position as the major supplier to this

market however in the future New Zealand is expected to offer increased competition as she is forced to diversify her lamb exports away from the major U.K. market.

The Middle East is currently unstable because Iran which took 46 per cent of Australian lamb exports in calendar year 1977 and 27 per cent of lamb exports in calendar year 1[illegible], is in a state of political turmoil. It is expected that Middle East demand for lamb in 1979 will decline unless an improvement in the Iranian political situation is soon forthcoming and oil production is resumed in that country. During 1978 New Zealand increased lamb shipments to the Middle East by 16.4 per cent to 30,000 tonnes and Australia increased shipments to New Zealand's principal lamb market, the U.K., by twelve-fold to 11,000 tonnes. However it is expected that Australia will not hold its increased position in the U.K. during 1979.

Australia has expanded its lamb exports to the United States in 1978. This market should remain a reasonably important outlet for Australian lamb.

Projected lamb export destinations are shown in Table 3.8.

Table 3.8

Projected Exports of Lamb by Destinations
% of Total Exports

Destinations	1978/79	1980/81	1984/85
Middle East	55	90	90
U.S.A.	10	8	8
United Kingdom	25	0	0
Other	10	2	2
	100	100	100

3.4 Projected Exports of Beef

3.4.1 Projected production of beef

As shown in Section 2.2.3 of this report, cattle numbers in Australia have declined 13.2 per cent in two years to a March 1978 population of 29.3 million head. The March 1979 cattle population is estimated at 27.2 million implying a further drop of 6.9 per cent. Despite the magnitude of this decline, cattle numbers in Australia are still expected to decline for at least one more year. This will be the result of the need to reduce stock numbers in Northern areas of Australia. Appendix IX contains a summary of livestock numbers in Australia by states. It can be seen that livestock numbers in Queensland and the Northern Territory are still at near record levels. This situation has developed because of the lack of markets. In Northern Australia beef production is largely of manufacture quality and is mostly exported, principally to the United States. Market access to the United States since 1964 has been restricted by 'entitlements' and Australia's allocation of 'entitlement' has, since 1974, been insufficient or at too low a price to allow the movement of sufficient quantities of beef to keep stock numbers at reasonable levels in northern Australia. However beef prices in the United States have risen to the point where it is now very profitable to export beef again. At the same time Australia's beef entitlement to the United States has recently been increased to 374,000 tonnes (shipped weight) for the 1979 year. This entitlement for 1979 could increase to 400,000 if shortfalls from other supplying countries are reallocated to Australia. This should provide for a large turnoff of northern cattle in particular during 1979.

Once stocking rates in northern Australia have been reduced to reasonable levels, and given the greatly improved economic performance of cattle in 1978/79, it is expected that cattle numbers will increase once again. This is projected to begin in southern Australia during 1979/80 however the need to

reduce northern Australian cattle numbers will still result in an overall herd decline in 1979/80. However from 1980/81 total cattle numbers are expected to increase again and continue to increase until the middle 1980's.

Projected beef production through to 1985 is shown in Table 3.7.

Table 3.7

Projections for Australian Cattle Industry 1977/78 to 1984/85

Year	Opening no. ('000)	% Change in Total numbers	Cattle & calves slaughtered ('000)	% of opening numbers slaughtered	Productivity Index	Av. carcass weight (kg)	Production ('000 tonnes)
1977/78	31,533	- 7.0	12,548.8	39.8	32.8	169.3	2,125.1
1978/79	29,325	- 6.9	12,000.0	40.9	34.0	176.5	2,118.0
1979/80	27,272	- 1.0	9,945.2	35.0	34.0	180.0	1,718.1
1980/81	26,999	+ 3.0	8,639.7	32.0	35.0	180.0	1,555.1
1981/82	27,809	+ 4.0	8,620.8	31.0	35.0	180.0	1,551.7
1982/83	28,921	+ 4.0	8,965.5	31.0	35.0	180.0	1,613.8
1983/84	30,078	+ 4.0	9,324.2	31.0	35.0	180.0	1,678.4
1984/85	31,281	+ 1.0	10,635.5	34.0	35.0	180.0	1,914.4

It is assumed that as beef prices improve so will the productivity index in response to better husbandry. Beef production in 1979/80 is projected to decline from present record levels and to continue to decline until 1981/82 before increasing again. By 1985 it is expected that beef production will again be near the record levels of 1977/78.

3.4.2 Projected exports of beef

Domestic consumption of beef in Australia has been at record levels over the last four years. However, per head consumption has begun to decline and this trend is likely to continue as beef prices rise. While beef consumption

increased at the expense of lamb and mutton, there is not likely to be sufficient production of lamb and mutton to allow a significant swing back to mutton and lamb. What is likely is a reduction in total red meat consumption in Australia over the next few years until red meat production increases. Projected consumption and exports of beef are shown in Table 3.8.

Table 3.8

Projected Production, Consumption and Export of Beef

('000 tonnes carcass weight)

Year ending 31st March	Production	Domestic Consumption	Export Availability
1977/78	2,125.1	931	1,167.6
1978/79	2,118.0	850	1,268.0
1979/80	1,718.1	800	918.1
1980/81	1,555.1	750	805.1
1981/82	1,551.7	700	851.7
1982/83	1,613.8	700	913.8
1983/84	1,678.4	750	928.4
1984/85	1,914.4	800	1,114.4

Beef export availability is likely to be 1.2 to 1.3 million tonnes carcass weight in 1978/79 before declining each year through to 1980/81. Beef exports are then expected to increase again exceeding 1 million tonnes by 1985.

3.4.3 Projected export destinations for beef and veal

As was explained in 2.3.3 of this report, the United States of America has consistently been the major market for Australian beef averaging 63.8 per cent of all beef and veal exports since 1960. Other traditional markets include Japan and the United Kingdom. However between 1974 and 1978 Australia was forced by export quotas to these traditional markets to develop

alternative outlets. These have principally been the U.S.S.R., Eastern Europe, Egypt, South Korea and the Middle East. In 1979, due to reduced domestic production of beef in the U.S. and generally reduced beef supplies around the world, Australian beef exports are again becoming centred on a few premium markets. These are the U.S., Canada, Japan and South Korea.

U.S. imports of beef and veal are currently governed by the Meat Import Law (P.L. 88-482) of 1964. In most years, this is the single most important factor determining the level of Australian beef exports to the U.S.A. However it is very likely that this import law will be replaced with one of a 'counter-cyclical' nature. Such a system will ensure that beef exports to the U.S.A. are high when U.S. production is low and vice versa. The most likely system to be imposed is one similar to that contained in the Poage Bill which was passed by the U.S. Congress but vetoed by President Carter in 1978. Apart from its Presidential Discretion provisions, the Poage Bill allows for a higher level of imports than the current law until 1983/84.

In the 1977/78 financial year, the U.S. accounted for 49 per cent of Australia's total beef and veal exports. This proportion would progressively increase under the counter cyclical formulae with U.S. imports reaching an expected peak of approximately 70 per cent in 1981/82, then decline to a low 35 per cent in 1985/86. The consequence of this is that Australia's beef and veal exports would be diverted away from other markets for the next few years, but these markets would have to be progressively re-established again after 1981/82.

The counter cyclical formulae has a very minor affect on the U.S. market because it only imports an average 7.7 per cent of domestic production. Australia on the other hand ships approximately 50 per cent of its exports and 25 per cent of total production to the U.S. Thus such a formulae would place the burden of adjustment to changing demand/supply situations on

Australia and other exporting countries. For this report it is assumed that such a formulae is introduced and thus projected Australian export destinations for beef and veal have been calculated accordingly.

The second most important market for Australian beef and veal is Japan. This market is also restricted by import quotas. Pressure is being applied by Japanese consumers to change the import system however the Australian Meat and Livestock Corporation reports that any major change is not likely to occur for a number of years. Total chilled and frozen beef imports into Japan for the twelve months ending December 1978 were 100,000 tonnes shipped weight. Australia supplied 78 per cent of this market. Given similar import quota levels Australia is likely to continue to supply similar amounts of beef and veal to Japan.

Over the last two years the Republic of Korea has become Australia's third largest beef market. In 1978 it imported 59,000 tonnes of beef, shipped weight, from Australia compared with only 500 tonnes in 1976. Behind this rapid emergence as a major beef market has been the development of a strong economy. The A.M.L.C. reports that Australia will remain the dominant supplier to South Korea as there are no other countries with the volume of beef available for export that are 'foot and mouth' free. However, it is likely that while beef prices remain high the Korean Government will increase its imports of other meats such as pork and poultry slowing down the expansion of beef imports.

The Middle East, which is a traditional sheep-eating region, took about 10 per cent of Australian beef exports in 1977/78. Beef exports to this region are expected to decline in the medium term with reduced exports to Egypt.

Projected exports of beef and veal by destinations are summarised in Table 3.9.

Table 3.9

Projected Exports of Beef and Veal by Destinations

Destinations	% of Total Exports		
	1978/79	1980/81	1984/85
U.S.A.	50	70	40
Japan	10	15	10
South Korea	8	10	10
Middle East	7	2	10
Other	25	3	30
	100	100	100

4. FUTURE ROLE OF MIDDLE EAST AND AFRICAN MARKETS FOR AUSTRALIAN MEAT EXPORTS

4.1 Future Role of Middle East Markets

The political situation in Iran, Australia's principal Middle East market, continues to be uncertain as at March 1979 and as a consequence exports have been affected to Iran. In fact during February 1979 no shipments at all were made to Iran from Australia. The Ayatollah Khomeini decreed in early March 1979 that there be no further imports of frozen or chilled meat. The reason for the ban seems to be doubt concerning halal slaughtering practices in the supplying countries. At the present time an Iranian delegation is inspecting Australian slaughtering facilities and it is expected that this will result in a lifting of bans on Australian meat exports to Iran. The meat market in Iran therefore in the medium term can be viewed with optimism.

During 1977/78 the Agricultural Business Research Institute co-ordinated a major study of the impact of the expansion of the Middle East for sheepmeat and live sheep on the structure of the Australian sheep industry. It was concluded that Australian exports of sheepmeat to the Middle East are likely to continue to expand in the short to medium term provided sufficient supplies are available from Australia.

Middle East OPEC countries had a population of some 51 million in 1974 with a growth rate of 3.4 per cent per annum. Domestic production of animal protein appears unlikely to increase at a rate sufficient to match the rate of growth in population because of restricted supplies of arable land and water. However, unlike several developing countries with food needs in excess of domestic production, the Middle East countries at present have the ability to pay for increasing levels of imports of agricultural commodities.

Likely Middle East sheep and/or goat meat import needs in 1982 were estimated to range between 320,000 and 385,000 tonnes. This was calculated by firstly estimating total Middle East consumption of sheepmeat and goatmeat

in 1982 by applying two alternative demand growth rates. The rates of 6.8 per cent per annum and 7.9 per cent per annum were originally computed for Iran to 1982/83 by the International Bank for Reconstruction and Development, and Bookers Agricultural and Technical Services Ltd., in conjunction with Hunting Technical Services Ltd., private consulting firms.

Domestic Middle East production for 1982 was estimated by applying an average annual growth rate of 3.25 per cent per annum to current domestic production. This rate of growth was estimated on the basis of FAO commodity projections to 1980.

The difference between estimated production and consumption represents the likely range of imports to the Middle East in 1982.

It was assessed that Australia would supply by 1982 180,000 tonnes of sheepmeats. This to be supplied as 80,000 tonnes of sheepmeats approximately half of which would be lamb and the remaining 100,000 tonnes supplied in the form of live sheep consisting of about 4 million head.

It is projected that Australia will be able to meet the above assessments for mutton and live sheep but may have difficulty in providing the assessed lamb requirements. In any case there is little doubt that the Middle East will play a major role as a significant market for both Australian lamb and mutton exports. The Middle East is likely to remain a minor market for Australian beef and veal in the medium term although by 1985 beef prices may be low enough again to attract Egypt into large purchases.

4.2 Future Role of African Markets

As explained already in this report, Africa has not been an important market for Australian meats except for live sheep shipments to Libya. Such shipments have totalled approximately 12,000 head per year since 1976 and the potential exists for an increased longer term market. However other African markets are unlikely to become important in the future. Many

African countries are politically unstable, suffer from shipping problems and have a past history of slow payment for meat imports. This particularly applies to West African markets which are seen by most Australian exporters as last resort markets.

Mr. Paul Hewston, of Uki Meat Industries,which has been the major company exporting Australian red meat to West Africa, does not see any African markets being of any great importance to Australian meat exporters. He forecasts similar quantities to that shipped in the past going to West African destinations on an opportunistic basis with maybe increased supplies going to Nigeria as a result of oil price increases.

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5. CONCLUSION

It is projected that Australian red meat production will decline over the next three years before rising again to reach by 1985 levels similar to those obtained in 1978/79. The principal markets for such meat are projected to remain the United States, Japan, Korea and the Middle East. It is likely that in 1985 these traditional markets will absorb all of Australia's sheepmeat exports. However beef exports are projected to reach high levels again by 1985, at a time when import requirements of beef from these traditional markets are likely to be low. Therefore exports of beef to non traditional markets are projected to become more important in the middle 1980's.

Exports of Australian meat to West Africa are expected to remain minimal. It is very unlikely that such exports would directly affect the red meat markets of West Africa. However, there may be some indirect effects because of shipments to the Middle East and to Libya.

APPENDIX I

Sheep Numbers, Australia

('000)

Classification	As at 31st March -											
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
SHEEP -												
Rams (1 year and over)	2,013	2,079	2,184	2,200	2,177	2,060	1,844	1,820	1,895	1,870	1,744	1,692
Breeding ewes (1 year and over)	76,618	77,872	83,607	85,474	84,381	75,611	68,687	70,035	70,647	68,473	64,743	63,625
Other ewes (1 year and over)	7,117	6,700	6,424	6,483	7,521	9,089	6,688	5,807	7,035	7,690	6,321	5,391
Wethers (1 year and over)	44,186	42,512	45,178	45,441	45,269	39,888	34,660	34,592	37,055	37,534	34,757	32,554
Lambs and hoggets (under 1 year)	34,302	37,750	37,212	40,482	38,443	36,374	28,149	32,921	35,020	33,077	27,784	28,180
Total sheep and lambs	164,237	166,912	174,605	180,080	177,792	162,910	140,029	145,175	151,653	148,643	135,350	131,442

Source: Australian Bureau of Statistics

APPENDIX II

Breeds of Sheep, Australia.
% distribution (a)

at 31st March	Merino	Other recognised breeds						Merino comebacks (b)	Cross-breeds (c)	Total
		Corriedale	Polwarth	Border Leicester	Dorset Horn	Other (incl. Unspecified)	Total			
Proportion of Aust. total -										
1965	76.0	6.2	2.0	1.5	0.7	1.0	11.5	2.6	9.9	100.0
1968	73.4	6.2	2.1	1.2	0.7	1.1	11.4	2.7	12.6	100.0
1971	74.9	4.9	2.1	1.0	0.8	1.0	9.8	2.8	12.4	100.0
1974	75.9	4.0	2.1	1.2	0.8	2.6	10.7	2.7	10.6	100.0
1977(d)	75.0	4.3	2.3	1.8	0.8	1.6	12.0	2.0	10.9	100.0

(a) Collected triennially since 1947.
(b) Finer than half-breed.
(c) Including half-breed Merino and coaser.
(d) Incomplete: not collected in Qld or N.T.

Source: Australian Bureau of Statistics.

APPENDIX III

Lambing Returns : Australia

Season (year ended 31st March)	Number of breeding ewes at beginning of season ('000)	Number of ewes		Number of lambs marked (c) ('000)	Number of lambs marked expressed as proportion of -	
		Intended to mate (a) ('000)	Actually mated (b) ('000)		Breeding ewes %	Actual matings %
1967	73,626	67,700	65,589	47,830	65.0	72.9
1968	76,618	73,535	68,895	50,648	66.1	73.5
1969	77,872	70,897	68,933	51,171	65.7	74.2
1970	83,607	76,519	73,114	56,784	67.9	77.7
1971	85,474	76,687	71,939	53,909	63.1	74.9
1972	84,381	75,273	69,722	51,705	61.3	74.2
1973	75,611	66,751	59,131	39,787	52.6	67.3
1974	68,687	62,837	58,720	42,961	62.5	73.2
1975	70,035	65,153	60,902	46,232	66.0	75.9
1976	70,647	65,060	60,526	44,121	62.5	72.9
1977	68,473	63,036	57,946	38,379	56.0	66.2
1978	64,743	59,777	NA	39,505	61.0	NA

(a) As stated by farmers at beginning of season.
(b) As stated by farmers at end of season.
(c) Excludes Northern Territory.
(p) Provisional.
NA Not yet available

Source: Australian Bureau of Statistics.

APPENDIX IV

Cattle Numbers, Australia

('000)

Classification	As at 31st March -											
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
MILK -												
Bulls 1 year and over used or intended for service	87	82	77	70	65	63	60	57	60	57	54	47
Bull calves under 1 year intended for service							21	20	18	16	13	13
Cows in milk and dry	2,881	2,794	2,701	2,677	2,601	2,565	2,523	2,371	2,355	2,345	2,185	2,057
Heifers 1 year and over	796	755	769	705	687	660	655	633	634	595	543	480
Heifer calves under 1 year	672	689	624	633	614	591	601	554	537	467	388	369
House cows and heifers	180	169	165	157	145	128	124	121	122	122	105	100
Total	4,616	4,489	4,336	4,242	4,112	4,007	3,984	3,757	3,727	3,602	3,289	3,069
MEAT -												
Bulls 1 year and over used or intended for service	279	299	323	363	414	462	489	516	562	564	523	476
Bull calves under 1 year intended for service							122	135	140	123	104	96
Cows and heifers 1 year and over	6,886	7,450	8,330	9,245	10,370	11,873	12,660	13,800	14,897	15,202	14,013	12,753
Heifer calves under 1 year	3,392	3,868	4,216	4,802	5,669	6,555	6,957	7,079	7,751	3,858	3,569	3,159
Other calves under 1 year)										4,197	3,813	3,367
Other cattle 1 year and over	3,097	3,113	3,401	3,510	3,808	4,475	4,889	5,551	5,716	5,888	6,235	6,463
Total	13,654	14,730	16,270	17,920	20,261	23,365	25,117	27,082	29,066	29,833	28,257	26,314
TOTAL ALL CATTLE	18,270	19,218	20,606	22,162	24,373	27,373	29,101	30,839	32,793	33,434	31,545	29,379

Source: Australian Bureau of Statistics.

APPENDIX V

Value of Australian Mutton Exports

Year ended June
A$'000 F.O.B.

Country	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
U.K.	2,581	2,973	1,700	4,833	6,862	7,147	7,588	4,130	3,871	4,338	5,443	4,453
U.S.	10,747	15,389	11,408	15,536	6,341	13,887	8,276	2,323	375	263	380	198
Canada	6,301	6,734	6,900	14,002	1,746	10,066	10,473	10,932	3,980	3,990	2,669	2,674
Japan	10,355	14,942	8,486	15,533	15,872	27,506	52,314	27,485	24,612	51,776	67,497	76,843
Soviet Union					8,922	3,101					9,826	
Other Destinations	5,355	4,148	3,723	11,240	12,455	27,576	22,058	17,642	15,937	20,866	35,593	39,672
Total	35,339	44,186	32,217	61,144	52,198	89,283	100,709	62,512	48,775	81,233	121,408	123,840

APPENDIX VI

Value of Australian Lamb Exports

Year ended June
A$'000 F.O.B.

Country	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
U.K.	1,855	1,229	4,778	7,044	7,488	5,548	7,545	8,676	2,021	704	1,210	408
U.S.	819	916	4,399	6,219	8,450	4,830	2,425	2,347	1,728	2,773	2,209	3,195
Canada	3,280	1,149	3,007	5,801	3,136	3,066	2,497	3,015	1,437	630	1,217	1,032
Japan	440	1,173	109	208	296	988	689	310	175	748	1,840	1,486
Other Destinations	1,585	1,083	923	1,235	2,479	3,342	4,797	2,328	10,160	15,446	39,796	30,424
Total	7,979	5,550	13,216	20,507	21,879	17,774	17,953	16,676	15,521	20,301	46,272	56,545

APPENDIX VII

Value of Australian Beef and Veal Exports

Year ended June
A$'000 F.O.B.

Country	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
U.K.	29,444	16,430	8,040	15,744	20,974	34,422	101,156	48,007	13,424	6,998	9,150	15,642
U.S.	145,199	157,075	173,332	226,153	208,336	259,779	354,345	368,170	215,981	287,153	263,413	412,127
Canada	3,397	3,972	7,513	20,428	16,713	19,448	32,476	36,696	24,606	29,588	38,722	31,298
Japan	4,693	9,053	9,951	11,015	23,260	44,613	114,080	138,604	14,518	65,735	81,757	96,616
Soviet Union					17,943	7,358			2,692	14,207	58,108	30,599
Other Destinations	15,510	12,351	12,137	20,845	15,661	23,303	52,684	44,265	51,540	84,103	167,766	237,358
Total	198,243	198,881	210,973	294,185	302,887	388,923	654,741	635,742	322,761	487,784	618,916	823,640

APPENDIX VIII

Australian Meat Exports to Liberia

		1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Beef B/I	tonnes			1.0		4.6	11.2	14.3	13.8	25.3	26.8	
	$'000			0.6		3.1	8.6	15.5	17.2	15.9	15.0	
Beef B/O	tonnes			10.7	7.6	19.5	25.0	45.8	17.5	23.3	81.4	72.2
	$'000			18.1	10.1	38.9	48.0	96.8	35.3	29.1	83.0	156.0
Veal B/I	tonnes					0.8	2.7	5.7	6.3	11.3	20.3	
	$'000					0.5	1.8	4.9	6.2	5.4	11.0	
Veal B/O	tonnes			0.5				0.9				
	$'000			0.6				1.1				
Mutton B/I	tonnes							1.7	1.6			
	$'000							0.8	1.8			
Mutton B/O	tonnes					3.2	5.7	11.6		2.4	6.8	
	$'000					3.9	5.1	11.8		3.7	6.0	
Lamb B/I	tonnes						6.4	3.7	4.2	5.8	12.1	
	$'000						2.6	2.2	5.2	6.2	17.0	
Lamb B/O	tonnes			1.6		1.7	4.3	6.6				
	$'000			1.3		0.6	3.5	6.2				
Goat Meat	tonnes							1.2			1.6	
	$'000							1.1			1.0	
Processed Meat	tonnes											
	$'000											
Offal	tonnes						1.9	4.2	3.2	2.5	7.2	
	$'000						2.2	3.8	2.3	1.3	3.0	
Total tonnes shipped		0.7	1.3	13.8	7.6	29.8	57.2	85.8	46.6	70.6	156.2	72.2
Value $'000		1.0	2.0	20.6	10.1	47.0	71.8	133.2	68.0	61.6	136.0	156.0

B/I - bone in: B/O - bone out

APPENDIX IX

Australian Meat Exports to Ivory Coast

		1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Processed meats	tonnes	0	0	0	0	0	0	11.7	0	0	0	0
	$'000	0	0	0	0	0	0	7.4	0	0	0	0

APPENDIX X

Australian Meat Exports to Ghana

		1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Beef B/I	tonnes	6.0										
	$'000	3.0										
Beef B/O	tonnes	54.0	8.4		.5			1.4	.8			
	$'000	45.0	9.0		.7			2.0	1.8			
Veal B/I	tonnes	5.1										
	$'000	4.0										
Veal B/O	tonnes	1.8										
	$'000	2.0										
Mutton B/I	tonnes	39.8	27.9		52.8							
	$'000	14.0	7.0		18.6							
Mutton B/O	tonnes	45.4	29.5		15.2	20.3						
	$'000	13.0	11.0		3.8	11.7						
Lamb B/I	tonnes	1.4	3.8	27.8	12.2	17.2				13.1		
	$'000	1.0	2.0	4.8	4.8	3.9				6.0		
Lamb B/O	tonnes	181.1	256.7	494.7	1068.6	819.0	482.9	125.4				
	$'000	77.0	69.0	125.2	215.8	129.4	99.0	20.2				
Goat meat	tonnes											
	$'000											
Preserved meats	tonnes		3.7			64.1						
	$'000		3.0			26.0						
Offal	tonnes	4.0	17.2			1.0						
	$'000	2.0	7.0			1.6						
Total tonnes shipped		338.6	347.2	522.5	1149.3	921.6	482.9	126.8	.8	13.1	0	0
Value $'000		161.0	108.0	130.0	243.7	172.6	99.0	24.2	1.8	6.0	0	0

B/I - bone in; B/O - bone out

APPENDIX XI Australian Meat Exports to Dahomey

		1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Processed meat	tonnes					82.9		23.3				
	$'000					22.8		14.7				

APPENDIX XII

Australian Livestock Numbers by States

at 31st March
('000)

Classification	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	N.T.	A.C.T.	Australia
Total cattle all purposes -									
1973	7,918	5,464	9,795	1,583	2,182	900	1,237	19	29,101
1974	8,456	5,840	10,297	1,692	2,330	884	1,321	19	30,839
1975	8,935	6,192	10,879	1,869	2,544	921	1,434	18	32,793
1976	9,138	5,868	11,347	1,891	2,654	909	1,603	23	33,434
1977	8,350	5,104	11,506	1,608	2,474	819	1,664	19	31,545
1978	7,372	4,572	11,490	1,242	2,271	734	1,681	16	29,379
Sheep and Lambs -									
1973	52,037	24,105	13,346	15,651	30,919	3,824	3	143	140,029
1974	53,296	25,788	13,119	16,431	32,451	3,964	1	126	145,175
1975	54,983	26,411	13,908	17,621	34,476	4,136	1	117	151,653
1976	53,200	25,395	13,599	17,279	34,771	4,249	1	148	148,643
1977	49,700	21,925	13,304	15,132	31,149	4,015	1	124	135,350
1978	48,000	22,021	13,438	14,073	29,820	3,969	1	119	131,442

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A STUDY OF THE DIRECT AND INDIRECT EFFECTS OF NEW ZEALAND MEAT EXPORTS ON THE RED MEAT MARKETS OF CENTRAL WEST AFRICA

Prepared for :

The Regents of the University of Michigan,
Ann Arbor,
Michigan U.S.A.

Prepared by :

J.L.P. Griffith,
Agricultural Business Research Institute,
University of New England,
Armidale. N.S.W. Australia.

March 1979.

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A SUMMARY OF THE DIRECT AND INDIRECT EFFECTS OF NEW ZEALAND MEAT EXPORTS ON THE RED MEAT MARKETS OF CENTRAL WEST AFRICA

Page

SUMMARY

1. New Zealand is a major force in the international trade of red meats. USDA worldwide assessments for 1977 show New Zealand exporting 9.7 percent of the world beef and veal trade and 47.0 percent of the world mutton and lamb trade.

2. The meat industry of New Zealand has contributed 29.5 percent of all New Zealand export earning over the last ten years. As a consequence New Zealand government policy is one of encouraging wherever possible increases in such production.

3. Sheep numbers in New Zealand have recovered strongly over the last three years, largely at the expense of cattle numbers, and now constitute 60 million head. This flock is heavily geared for lamb production with 72 percent of all sheep being breeding ewes which produce an average 94 percent lambs of which 65 percent are slaughtered.

4. The total cattle herd consists of 8.5 million head of which 32 percent are dairy cattle. Cattle numbers have been declining but are now stabilizing.

5. Mutton production over the last ten years has ranged from 140 - 216 thousand tonnes of which approximately 43 percent is domestically consumed leaving exports of 80 - 124 thousand tonnes per year (shipped weight).

6. Lamb production over the last ten years has ranged from 304 - 378 thousand tonnes of which approximately 9 percent is domestically consumed leaving exports of 297 - 340 thousand tonnes per year (shipped weight).

7. Beef and veal production over the last ten years has ranged from 301 - 628 thousand tonnes of which approximately 35 percent is domestically consumed leaving exports of 108 - 255 thousand tonnes (shipped weight).

8. Principal markets for New Zealand meat have been the United Kingdom (for lamb), Japan (for mutton) and the United States (for beef). Central West Africa has not been an important market for New Zealand meat. The largest shipments to this region occurred in 1975 and consisted of 1648 tonnes which constituted a quarter of one percent of total New Zealand meat exports.

9. Shipping of meat between New Zealand and West Africa is very difficult as no regular service exists. Reasonably large tonnages must be involved before diversion or charter is warranted.

10. New Zealand mutton and lamb production is projected to increase over the next six years. By 1985 lamb production is projected to reach 407,000 tonnes and mutton production to reach 214,000 tonnes. Sheep numbers are expected to continue to expand in response to increased investment in agriculture.

11. New Zealand beef production is projected to initially decline as slaughter rates are reduced due to beef producers at first stabilising numbers and then increasing the size of the herd. By 1985 New Zealand beef production is projected to reach 509,000 tonnes which is near record levels once again.

12. The traditional markets for beef and mutton are expected to continue to take the majority of projected New Zealand exports. However for lamb it is expected that the Middle East will become an increasingly important market at the expense of the traditional United Kingdom market.

13. Africa is not expected to become an important market for New Zealand meat. Most African markets, and especially West African markets, are seen by most New Zealand exporters as last resort markets.

14. While it is projected that New Zealand exports of red meat will expand between now and 1985, it is not expected that New Zealand will have any problem in finding markets for such products. Thus exports of New Zealand meats to West Africa are expected to remain minimal and therefore not expected to directly effect the red meat markets of West Africa. However, there may be some indirect effects because of expected lamb exports to the Middle East.

1. INTRODUCTION

The Agricultural Business Research Institute was engaged on the 1st of May, 1978 by the Regents of the University of Michigan to undertake an indepth study of the lamb, mutton and beef industries of Australia and New Zealand and to assess if future exports from these countries would effect the red meat markets of Central West Africa. The following paper covers the above for New Zealand.

2. HISTORICAL REVIEW OF THE NEW ZEALAND MEAT INDUSTRY 1967/68 - 1977/78

2.1 Economic Background to the New Zealand Meat Industry

2.1.1 Background to the New Zealand Meat Industry

The pastoral industry plays a dominant position in the economy of New Zealand. On average over the last ten years this industry has provided 78 percent of New Zealand export earnings in addition to meeting domestic requirements for such products. Of total export earnings the meat industry has contributed 29.5 percent over the last ten years.

U.S.D.A. world wide assessments of red meat production and exports and imports for 1977 shows New Zealand producing 1.3 percent of beef and veal meat, 10.4 percent of mutton, lamb and goat meat but exporting 9.7 percent of the world beef and veal trade and 47.0 percent of world mutton and lamb trade. The same source shows in 1976 New Zealand exporting 10.0 percent of the world beef and veal trade 49.9 percent of the world mutton and lamb trade. Thus in terms of international trade of red meats New Zealand is a major force. This is particularly so for lamb for which New Zealand must supply in excess of 85 percent of all lamb traded on world markets.

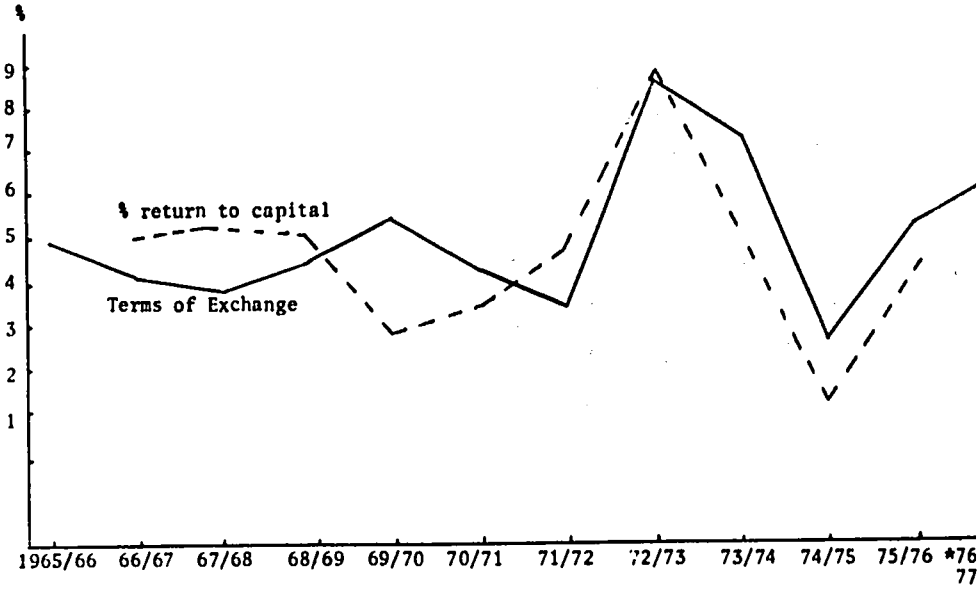
2.1.2 Economic Performance of the Sheep and Cattle Grazing Industries

In New Zealand most farms run both sheep and cattle. This is different to Australia where there are definite specialised cattle breeding areas. Thus an average mixed farm is probably the best indicator of economic performance. Figure 2.1 graphs the terms of exchange at farm gate with the average return on capital as determined by sheep and beef farm surveys conducted by the New Zealand

Meat and Wool Board's Economic Service for an average mixed farm.

Figure 2.1

Terms of Exchange at Farm Gate in Real Terms (Base 1965/66) and percentage return to Capital Invested.



*Projected

Source: N.Z. Meat & Wool Boards' Economic Service.

The terms of exchange index line demonstrates the purchasing power of the farmer per unit of output. The percentage returns to capital is the ratio of net farm income to total capital involved. While these lines do not necessarily correspond, there is a reasonable correlation between the two. The fall in cattle prices in 1974 and its consequent effects on farm profit is clearly seen in Figure 2.1.

Thus economic performance of New Zealand farms is variable with an average 4.7 percent return to capital employed over the last ten years.

2.1.3 Cost of processing and marketing meat

The New Zealand Meat Producers' Board estimate the marketing costs for New Zealand meat. Tables 2.1, 2.2 and 2.3 show the latest estimates of charges for lamb, mutton and beef to the major respective export markets. Costs are expressed in N.Z.$ to the nearest cent.

Table 2.1

Estimated Charges on N.Z. Lamb from Farm Gate to Ex-Depot, United Kingdom.

(Calculations are based on a North Island PM grade lamb of 14.2 kg)

	January 1979 ($ head)
Transport to works[1]	0.38
Works to F.O.B.	6.42
Total Charges to F.O.B.	6.80
F.O.B. to ex-hooks Smithfield	13.06
Total Charges to Ex-Depot United Kingdom	19.86

1. Based on 50 km Hawke's Bay

Table 2.2

Estimated Charges on N.Z. Mutton from Farm Gate to C. & F. Japan

	January 1979 ($ head)
Transport to works[1]	0.52
Works to F.O.B.	9.43
Total Charges to F.O.B.	9.95
F.O.B. to C. & F. Japan	7.06
Total Charges farm gate to C. & F. Japan	17.01

1. Based on 50 km Hawke's Bay

Table 2.3

Estimated Charges on N.Z. Boneless Cow Beef from Farm Gate to C.I.F. New York

(Calculations based on a North Island M grade cow of 160 kg. yielding 64%)

	January 1979 ($ head)
Transport to works[1]	4.70
Works to F.O.B.	57.87
Total Charges to F.O.B.	62.57
F.O.B. to C.I.F. New York	29.56
Total Charges farm gate to C.I.F. New York	92.13

1. Based on 50 km, Manawatu

2.1.4 Government Policy affecting Meat Production

As explained in Section 2.1.1 of this report, New Zealand relies heavily on its pastoral industry for its export earnings. Thus government policy is designed to do everything possible to encourage further pastoral production, especially meat production, to further improve export earnings. In the last New Zealand budget of 1st July, 1978, the government announced further measures with the objective of encouraging reinvestment by the farming sector and the expansion of farm output. Livestock grants were announced to be paid out on the basis of stock on hand, supplementary minimum prices for meat and wool for a period of two years ahead designed to underwrite prices were also announced. Fertilizer subsidies, transport subsidies and land development encouragement loans were also announced amongst a package of measures.

In summary New Zealand government policy towards meat production is one of encouraging where ever possible increases in such production.

2.2 New Zealand Meat Production Statistics 1967/68 - 1977/78

2.2.1 Background to New Zealand Carrying Capacity

Overall stocking rate in New Zealand during the late 1960's and 1970's has remained fairly constant at around 100 million stock units after a period of fairly rapid growth during the early 1960's. Within the meat sector, however, the composition of the total stock units has changed from around 74 percent sheep and 26 percent beef in 1967/68 to around 66 percent sheep and 34 percent beef cattle in 1976/77. Lately, however, sheep numbers have increased and beef numbers declined and this situation seems likely to continue for the immediate future.

Table 2.4

TOTAL STOCK UNITS AND RATIO OF SHEEP TO BEEF CATTLE 1967/68 to 1976/77 (Also Total Stock Units Sheep, Beef and Dairy)

	Total Sheep & Beef S.U.[1] millions	Percent Sheep (meat & wool farms)	Cattle farms)	Total S.U. Sheep, Beef, Dairy millions
1967/68	76.1	74	26	97.6
1968/69	77.9	73	27	99.9
1969/70	78.5	72	28	100.4
1970/71	79.7	71	29	100.6
1971/72	79.2	70	30	99.3
1972/73	82.4	70	30	102.5
1973/74	80.3	67	33	99.8
1974/75	81.1	65	35	99.3
1975/76	81.7	64	36	100.0
1976/77	81.5	66	34	99.6

Source: Ministry of Agriculture and Fisheries

The movement in total carrying capacity and the relativity between sheep and cattle numbers is a reflection of the level of farming investment in previous seasons and the relative profitability of sheep and cattle during the period considered.

[1] S.U. - Stock Unit is equivalent to one ewe. A cow, for example, is equal to 6 S.U's.

During the period 1967/68 to 1971/72, farm incomes were depressed to the extent that farm spending was below maintenance levels. During 1972/73 and 1973/74 farm spending was above maintenance but fell below maintenance again in 1974/75. Since 1975/76 farm spending has been above maintenance. Thus over the last ten years in New Zealand farming investment has not been enough to provide for an improvement in carrying capacity although the trend over the last three years suggests increases in stocking rates in the future. Table 2.5 shows expenditure on sheep farms since 1965/66.

Table 2.5

Expenditure per stock unit - 1965/66 to 1976/77
(All Classes Average Farm)

Year	Actual Exp/S.U. NZ$	Real (Base 1965/66) Exp/S.U. NZ$	Index of Exp/S.U.
1965/66	4.90	4.90	100
1966/67	4.71	4.56	93
1967/78	4.34	4.06	83
1968/69	4.75	4.31	88
1969/70	5.02	4.43	90
1970/71	5.08	4.27	87
1971/72	5.44	4.29	88
1972/73	6.68	5.02	102
1973/74	7.90	5.20	106
1974/75	7.23	4.19	86
1975/76	9.09	4.71	96
1976/77*	11.44	4.99	102

*Provisional

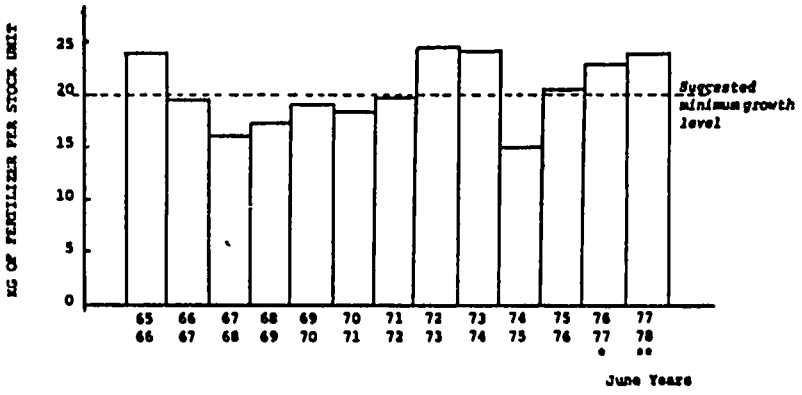
Source: N.Z. Meat & Wool Boards' Economic Service

In New Zealand in particular, investment in fertilizer is one of the key factors in determining stocking rates and animal performance. The linkage between fertilizer usage, and stock performance and production in New Zealand is well proven but is not direct at a point of time due to the inevitable lag between application and the animal production response. Analysis of historical performance suggests that a fertilizer usage level of not less than 20 kg per stock unit per year is necessary to achieve some growth in production. Figure 2.2 shows

the volume of fertilizer used per stock unit on New Zealand farms since 1965/66.

Figure 2.2

Volume of Fertilizer used per Stock Unit on Meat and Wool Farms (1965/66 to 1977/78



* *Provisional*
** *Estimate*

SOURCE: N.Z. Meat & Wool Boards' Economic Service

It can be seen that fertilizer inputs until recent years have not been sufficient to increase production. However, over recent years expenditure on fertilizer has been increasing and should result in increases in stock numbers over the next few years at least.

Preliminary assessments of stock numbers for 1977/78 suggest a small reduction in total New Zealand carrying capacity. This is largely the result of very poor seasonal conditions experienced during the year which is illustrated by Table 2.6

Thus the analysis of past New Zealand carrying capacity would suggest that increases in total stock numbers are very likely over the next few years given average or better seasonal conditions. Changes in stock numbers in the medium term will be greatly influenced by the profitability of farms over the next few

years. If profit levels can be maintained, then it is likely that a continued growth in total stock numbers will result.

Table 2.6

Days of Soil Moisture* Deficit Weighted by Sheep Population
Season (July-June year)

1966/67	26.7
1967/68	32.3
1968/69	32.7
1969/70	35.2
1970/71	39.0
1971/72	30.7
1972/73	59.7
1973/74	40.5
1974/75	30.4
1975/76	36.9
1976/77	27.2
1977/78	63.9

*A relative index of the number of days when there is insufficient moisture in the soil to allow for pasture growth.

Source: New Zealand Meterological Service

2.2.2 Sheep Production Statistics

Sheep numbers in New Zealand declined from close to 61 million head in 1972 to nearly 55 million in 1975. Since 1975 numbers have quickly built up again to a flock of just over 60 million at the present time. Appendix 1 contains a summary of the size and structure of the New Zealand flock over the last ten years. This flock is essentially a dual purpose flock designed to produce both lamb and wool. The principal breed of sheep in New Zealand is the Romney which makes up about 60 percent of the total flock. Most of the wether lambs from Romneys are slaughtered as lambs. Merinos constitute less than 2 percent of the total New Zealand flock. Cross bred sheep based on Romney are now assuming greater numbers relative to the straight Romney. Nearly 72 percent of all sheep are breeding ewes which produce an average of 94 percent lambs of which 65 percent are slaughtered. This compares with the Australian flock which consists of only about 48 percent breeding ewes producing an average of 63 percent lambs of which about one third

are slaughtered. Thus New Zealand, which has only 40 percent of Australia's sheep numbers, produces 36 percent more lamb.

Changes in New Zealand sheep numbers and slaughter rates over the last twelve years are shown in Table 2.7.

Table 2.7

New Zealand Sheep and Lambs Slaughtered 1966/67 to 1977/78

Year 30th June	Opening No. of Sheep & Lambs ('000)	Percent Change	No. of Sheep Slaughtered ('000)	Percent of Opening no. Slaughtered	No. of Lambs Slaughtered[1] ('000)	Percent of Opening no. Slaughtered
1966/67	57,343	+ 6.7	8,474	14.8	24,157	42.1
1967/68	60,030	+ 4.7	10,159	16.9	26,424	44.0
1968/69	60,474	+ .7	9,603	15.9	26,857	44.4
1969/70	59,937	- .9	9,844	16.4	27,539	46.0
1970/71	60,275	+ .5	10,041	16.7	27,223	45.2
1971/72	58,912	- 2.3	9,379	15.9	27,948	47.4
1972/73	60,883	+ 3.3	11,332	18.6	26,772	44.0
1973/74	56,684	- 6.9	9,764	17.2	23,085	40.7
1974/75	55,883	- 1.4	8,084	14.5	25,515	45.7
1975/76	55,320	- 1.0	7,584	13.7	26,049	47.1
1976/77	56,400	+ 2.0	7,890	14.0	25,505	45.2
1977/78	59,105	+ 4.8	8,504	14.4	26,760	45.3

1. Including slaughterings on farms and at rural slaughter houses

NB: Sheep numbers are at 30 June and slaughtering to 30 September so in any one year there could be minor deviation from the yield percentages quoted above

As in Australia, economic pressures and/or seasonal conditions in New Zealand largely cause the changes in sheep numbers and slaughter rates over time.

The strong recovery in sheep numbers over the last three years reflect generally improved wool and meat prices (relative to 1974/75), and the enhanced relative profitability of sheep versus beef exterprises. A degree of substitution between livestock categories has occurred and the increase in sheep numbers has

been, at least in part, at the expense of a rundown in beef cattle numbers. The slaughter rates of both sheep and lambs has declined, especially for sheep, to provide for the growth in numbers.

The movement in sheep numbers over the past twelve years is shown in Table 2.8.

Table 2.8

Sheep and Lambs: Analysis of Movement in Numbers: New Zealand ('000)

Year 30th June	Number at beginning of season	Lambs marked	Net (live) Exports	Sheep and Lambs Slaughtered	Estimated deaths on farms	Death Percent	Number at Close of Season
1966/67	57,343	39,362	-	32,631	4,045	7.1	60,029
1967/68	60,029	40,921	15	36,583	3,879	6.5	60,473
1968/69	60,473	40,416	4	36,460	4,488	7.4	59,937
1969/70	59,937	42,078	-	37,383	4,356	7.3	60,276
1970/71	60,276	39,961	-	37,264	4,061	6.7	58,912
1971/72	58,912	40,610	-	37,327	1,312[1]	2.2	60,883[1]
1972/73	60,883	40,788	9	38,104	6,874	11.3	56,684
1973/74	56,684	37,304	98	32,849	5,158	9.1	55,883
1974/75	55,883	37,411	5	33,599	4,370	7.8	55,320
1975/76	55,320	38,623	-	33,633	3,910	7.1	56,400
1976/77	56,400	39,699	17	33,395	3,582	6.4	59,105
1977/78	59,105	39,934	N/A	35,264	3,475	5.9	60,300

Source: N.Z. Department of Statistics

[1] Stock retention incentive scheme introduced in late 1971 involved direct payment based on the number of head on hand in June 1972. Thus stock numbers at the 30-6-72 are artifically high when compared with records for other years.

Live sheep exports from New Zealand are practically non existant. Live sheep exports for slaughter were banned by the New Zealand Government although technically no ban exists now. However, New Zealand unions are understood to be strongly against live exports. In any case, the New Zealand sheep flock does not provide many suitable sheep for live export. Only about 2 percent of the flock consists of wethers while in Australia, which currently exports about 4 million live wethers per year, the flock consists of 25 percent wethers. Sheep deaths as determined by

reconciliation average 7.2 percent of opening numbers.

Lamb production over the last twelve years is shown in Table 2.9.

Table 2.9

New Zealand Lamb Production 1966/67 to 1976/77

Year ending 30th June	Opening breeding ewe no. ('000)	Ewes as a percentage of all sheep	Lambs marked ('000) 31st January	Lambing percent of ewe no.	Percent of lambs slaughtered	Lamb production ('000 tonnes)	Carcass Weight (kg)
1966/67	39,668	69.18	39,362	99.2	61.4	332.1	13.7
1967/68	41,408	68.98	40,921	99.1	64.6	350.2	13.2
1968/69	42,651	70.50	40,415	94.8	66.5	362.8	13.5
1969/70	43,385	72.30	42,078	97.0	65.4	362.6	13.2
1970/71	42,911	71.20	39,961	93.1	68.1	358.9	13.2
1971/72	43,017	73.02	40,610	94.4	68.8	378.9	13.2
1972/73	44,152	72.52	40,788	92.4	65.6	341.0	12.7
1973/74	41,017	72.36	37,304	90.9	61.9	304.6	13.1
1974/75	40,366	72.23	37,411	92.7	68.2	327.0	12.9
1975/76	41,108	74.31	38,623	94.0	67.4	357.6	13.7
1976/77	41,200	73.04	39,699	96.4	64.2	341.5	13.4
1977/78	42,782	72.38	39,934	93.3	67.0	338.1	12.9
12 yr.av.		71.84		94.7	65.7		13.2

NB: Sheep numbers are at 30th June and slaughterings to 30th September so in any one year there could be a minor deviation from the yield percentages quoted above.

Sources: N.Z. Department of Statistics
Ministry of Agriculture and Fisheries.

Lamb production has ranged from 304.6 to 378.9 thousand tonnes over the last twelve years. During the 1970's the percentage of ewes in the flock has remained reasonably constant with a range of 71.2 to 74.3 percent as indeed has the number of ewes in the flock. Lambing percentages have shown a much greater variation from 90.9 to 99.2 percent. The percentage of lambs slaughtered has ranged between 61.9 and 68.8 percent. Lamb carcass weights have ranged between 12.7 and 13.4 kg. Lamb marking percentages are largely the result of seasonal conditions in the preceeding autumn. Thus the poor lambing result in 1973/74 was the direct result of these poor seasonal conditions during 1972/73. In New Zealand practically all

ewes are mated in the autumn so that there is a very strong correlation between seasonal conditions in the summer-autumn and the size of following lamb drop. It is expected that the lamb drop in 1978/79 will be low because of the difficult 1977/78 summer-autumn. Lamb carcass weights are the direct result of seasonal conditions in the year of slaughter. For example 1972/73 and 1977/78 were low rainfall years with consequently low average lamb carcass weights. The percentage of lambs slaughtered is influenced by the stage of the sheep cycle and seasonal conditions. If sheepmen wish to expand numbers, or to maintain numbers after heavy losses such as in a drought, more lambs must be retained as replacements.

New Zealand mutton production over the last twelve years is shown in Table 2.10.

Table 2.10
New Zealand Mutton Production 1966/67 to 1976/77

Year ending 30th September	Number Slaughtered	Mutton ('000 tonne) (a)	Carcass Weight (kg)
1966/67	8,474	188.4	22.2
1967/68	10,159	216.1	21.3
1968/69	9,603	199.8	20.8
1969/70	9,844	199.9	20.3
1970/71	10,071	204.9	20.3
1971/72	9,378	195.8	20.9
1972/73	11,332	215.1	19.0
1973/74	9,764	192.9	19.7
1974/75	8,084	163.9	20.3
1975/76	7,584	155.2	20.5
1976/77	7,890	156.2	19.8
1977/78	8,504	156.5	18.4
			av. 20.37

(a) Excludes offal

Mutton production has ranged between 140 and 216.1 thousand tonnes. The level of mutton production is influenced by the size of the flock and by the stage of the sheep cycle. During an expansion phase ewes are kept as breeders as long as possible so that mutton production is usually low relative to the size

of the flock especially in the initial years of an expansion phase.

2.2.3 Cattle Production Statistics

Beef cattle numbers (estimated at 6.3 million as at January 1978) are currently in their fourth year of decline as a result of depressed world markets, and schedule prices vis-a-vis returns per other enterprises. Significantly however, the fall in beef breeding cow numbers has not been as pronounced as might have been expected, with the result that cow numbers as a proportion of the national herd have recovered slightly from earlier levels.

Dairy cattle numbers which constituted 45 percent of all cattle in 1966/67 now constitute 32 percent of all cattle. The consistent decline in dairy numbers over the past eight years is now thought to be stabilising. Despite a further decline in the number of dairy farms, the number of cows in milk as at 31st January, 1978 is assessed to be little different from that of one year ago. Appendix II contains a detailed breakdown of the size and structure of the New Zealand cattle herd since 1966/67.

Table 2.11 contains a statistical summary of the total New Zealand cattle industry.

As at the 30th June, 1978, the total cattle inventory is estimated at 8.5 million head, down by 2.9 percent from the level a year earlier and about 9 percent below the 1973/74 peak of 9.3 million head. In addition to the relative profitability factors outlined above, this movement has resulted from four years of record cattle killings and lower retentions of beef-type calves of dairy origin. A static cattle population is forecast for 1978/79.

Table 2.11

New Zealand Cattle Industry Statistics 1967/78 to 1976/77

Years ending 31st January or 30th June[1]	Total cattle ('000)	Percent Change in Total	Calves & Cattle Slaughtered ('000)	Percent of opening no. slaughtered[2]	Production ('000 tonnes carcass wt.)	Slaughter index (kg) (a)
1966/67	7,747	+ 7.4	2,132	31.39	301.7	124
1967/68	8,247	+ 6.5	2,730	33.10	344.7	126
1968/69	8,605	+ 4.3	3,501	35.46	376.4	108
1969/70	8,777	+ 2.0	3,147	35.86	392.8	125
1970/71						
31.1.71	8,819	+ 0.5	2,904	32.93	393.2	135
30.6.71	7,994					
1971/72						
30.6.72	8,631	- 2.1	2,845	35.59	409.9	139
1972/73	8,924	+ 3.4	3,122	36.17	445.5	144
1973/74	9,311	+ 4.3	3,064	34.33	404.7	132
1974/75	9,292	- .2	3,610	38.77	508.1	141
1975/76	9,017	- 3.0	3,902	41.99	628.1	161
1976/77	8,750	- 3.0	3,605	39.98	557.7	155
1977/78	8,500	- 2.9	3,627	41.45	554.5	153

(a) Beef and veal produced ÷ no. slaughtered

1 1966/67 - 1970/71 years ending 31st January
1971/72 - 1977/78 years ending 30th June

2 Between 1966/67 - 1971/72 opening number taken as the number on hand at 31st January of year.

Source: New Zealand Meat and Wool Boards' Economic Service

Table 2.12 shows the relationship between the rate of herd increase and slaughter rate.

The productivity index, which is the total of the percent increase in the herd and percent slaughtered, was relatively stable between 1966/67 and 1977/78. The values calculated for 1970/71 and 1971/72 are distorted by a change in the date for collecting cattle statistics. Up to 1970/71 data was collected at the 31st January and from 1971/72 it has been collected at the 30th June. The productivity index is a measure of the level of husbandry management and seasonal conditions. If cattle husbandry is at a high level and seasonal conditions

favourable, then the productivity index will be high and vice versa.

Table 2.12

New Zealand Relationship between Rate of Herd Increase and Slaughter Rate

Year ending 31st January or 30th June[1]	Percent increase in total herd (A)	Percent of opening no. slaughtered (B)	Productivity index (A & B)
1966/67	+ 7.4	31.39	38.99
1967/68	+ 6.5	33.10	39.60
1968/69	+ 4.3	35.46	39.76
1969/70	+ 2.0	35.86	37.86
1970/71	+ 0.5	32.93	33.43
1971/72	- 2.1	35.59	33.49
1972/73	+ 3.4	36.17	39.57
1973/74	+ 4.3	34.33	38.63
1974/75	- 0.2	38.77	38.57
1975/76	- 3.0	41.99	38.99
1976/77	- 3.0	39.98	36.98
1977/78	- 2.9	41.45	38.55

1 1966/67 - 1970/71 year ending 31st January
1971/72 - 1977/78 year ending 30th June

Beef production is shown in Table 2.11 and over the last twelve years has ranged from 301.7 to 628.1 thousand tonnes carcass weight. The record level of beef production of 628 thousand tonnes being recorded in 1975/76.

2.3 New Zealand Meat Consumption and Export Statistics

2.3.1 Consumption and Exports of Mutton

Table 2.13 summarises mutton consumption and exports over the last eleven years.

Table 2.13

New Zealand Production, Consumption and Exports of Mutton
('000 tonnes)

Year ending 30th September	Production (carcass weight) Tonnes	Export (Shipped weight) Tonnes	Consumption (Carcass weight)	Per Head kg	Percent Consumed
1966/67	188.4	100.7	78.6	29.1	41.7
1967/68	216.1	112.1	82.4	30.0	38.1
1968/69	199.8	124.1	85.2	30.5	42.6
1969/70	199.9	101.2	86.8	31.0	43.4
1970/71	204.9	111.6	88.9	31.0	43.4
1971/72	195.8	100.2	95.4	32.0	48.7
1972/73	215.1	92.2	89.5	30.0	41.6
1973/74	192.9	110.8	84.2	28.0	43.6
1974/75	163.9	107.2	78.7	26.0	48.0
1975/76	155.2	80.1	66.5	21.0	42.8
1976/77	156.2	94.9	60.2	19.2	38.5

Source: New Zealand Meat Producers Board Annual Reports
New Zealand Department of Statistics

As was the case in Australia, New Zealand domestic consumption remained steady at about 30 kg per head until the beef price crash of 1974. After the fall in beef prices, beef was increasingly substituted for mutton so that by 1976/77 per head consumption of mutton had fallen to 19 kg per head. At the same time total mutton production was declining so that mutton exports remained at roughly the same levels.

Exports of mutton by destinations are shown in Table 2.14.

Japan has been the most reliable market for mutton in recent years. During 1977 USSR increased purchases of New Zealand mutton forcing Japan to buy more mutton from Australia. During 1978 the USSR purchased small amounts of New Zealand mutton allowing increased mutton supplies to go to Japan. Japan is likely to remain New Zealand's principal mutton customer.

Table 2.14

New Zealand Exports of Mutton by Destinations - Shipped Weight
Year ended 30th September for years 1970-78 and 31st December for years 1967-69

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
United Kingdom	22,129	32,268	26,431	20,064	22,380	13,171	7,818	3,737	5,048	11,488	7,736	14,121
Other E.E.C.	1,779	1,438	1,595	878	1,357	1,394	1,167	824	835	1,127	548	1,640
U.S.S.R.	0	0	0	7,238	16,684	0	0	20,060	30,836	27,659	44,951	6,171
North America	150	417	1,419	308	1,772	233	53	61	8	9	32	75
Peru	0	511	346	0	2,126	5,675	3,522	4,016	1,985	2,782	0	0
Iran	0	0	0	0	0	0	0	12,292	67	194	34	0
Other Middle East	0	0	1	0	35	23	82	703	1,971	1,414	408	644
Dahomey/Benin	0	0	0	0	0	0	0	0	0	0	0	0
Ghana	0	57	0	7	6	0	114	0	0	0	0	0
Ivory Coast	0	0	0	0	0	0	0	0	0	0	0	0
Liberia	0	0	0	0	0	0	0	0	0	0	0	0
Togo	0	0	0	0	0	0	0	0	0	0	0	0
Other African	968	56	61	73	63	32	5	44	18	2	8	15
Japan	72,722	72,163	89,959	64,719	59,667	63,511	64,537	46,870	46,409	20,986	25,592	28,088
South Korea	0	0	0	12	1,067	5,455	8,741	14,860	13,171	10,919	12,651	21,411
Other	2,957	5,148	4,359	7,924	6,475	2,753	14,188	7,350	6,856	4,381	3,001	2,503
Total	100,705	112,058	124,175	101,223	111,632	92,247	100,227	110,817	107,204	80,961	94,961	74,668

Source: New Zealand Meat Producers Board

South Korea is also an important mutton outlet. However, most of the mutton has been processed in Korea for transhipment to Japan.

The United Kingdom is also a reasonably important market for mutton and is likely to remain so. Section 3.3.4 of this report will consider future developments in mutton export markets.

2.3.2 Consumption and Exports of Lamb

Table 2.15 summarises lamb consumption and exports over the last eleven years.

Table 2.15

New Zealand Production, Consumption and Exports of Lamb ('000 tonnes)

Year ending 30th September	Production (carcass weight)	Exports (Shipped weight)	Domestic Consumption (carcass wt)	Per Head (kg)	Percent Consumed
1966/67	332.1	297.2	27.2	10	8.2
1967/68	350.2	323.1	26.8	10	7.6
1968/69	362.8	329.3	25.6	9	7.1
1969/70	362.6	330.0	26.8	9.5	7.4
1970/71	358.9	331.9	28.8	10	8.0
1971/72	378.9	339.7	33.5	12	8.8
1972/73	341.0	305.9	37.1	13	10.9
1973/74	304.6	250.5	32.2	11	10.6
1974/75	327.0	295.4	37.2	12	11.4
1975/76	357.6	315.3	37.6	12	10.5
1976/77	341.5	311.3	35.0	11.2	10.2
1977/78	338.1	303.5	N/A	N/A	N/A

Source: New Zealand Department of Statistics

Usually 90 percent of lamb production is exported. Domestic consumption declined slightly in 1976/77.

Table 2.16

New Zealand Exports of Lamb by Destinations year ended 30th September for years 1970-77 and 31st December for years 1967-69.

(Shipped weight)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
United Kingdom	270,920	283,784	292,034	286,879	187,264	279,338	220,704	197,501	223,853	204,069	210,067	179,925
Other EEC	1,973	2,769	2,683	3,680	5,479	11,684	16,894	8,118	12,414	12,931	11,338	20,493
Greece	3,060	6,398	6,244	8,870	14,640	16,794	24,573	5,086	5,877	15,127	4,399	14,894
Canada	4,638	9,847	1,474	2,314	2,561	4,152	5,133	4,525	15,579	8,648	7,104	9,114
U.S.A.	4,459	5,912	10,139	10,714	6,788	8,165	10,600	6,129	8,184	12,293	7,328	12,477
Iran	0	0	0	0	0	0	0	3,303	3,343	19,408	27,384	27,145
Iraq	0	0	0	0	0	0	0	3,708	8,465	12,782	9,051	2,733
Other Middle East	4	0	16	298	0	328	1,811	4,156	5,840	2,132	3,241	2,852
Dahomey/Benin	0	0	0	0	0	0	0	0	0	0	0	0
Ghana	393	436	454	658	547	218	286	761	508	722	610	8
Ivory Coast	0	0	0	0	0	0	0	0	0	0	0	0
Liberia	1	1	4	2	1	1	0	0	0	0	8	0
Togo	0	0	0	0	0	0	0	0	0	0	0	0
Other African	738	634	685	707	461	749	1,308	1,043	557	424	581	1,004
Japan	1,582	2,881	4,920	5,796	3,033	5,781	8,152	5,703	8,214	10,429	14,305	15,279
South Korea	0	0	0	5	758	0	0	1	110	1,047	717	375
Other	9,477	10,470	10,702	10,055	11,055	12,473	16,474	10,556	2,451	15,181	15,244	17,205
Total	297,245	323,132	329,355	329,978	331,887	339,683	305,935	250,490	295,395	315,263	311,377	303,504

Source: New Zealand Meat Producers Board

The main market for New Zealand lamb is the United Kingdom which usually takes in excess of 200,000 tonnes. Exports to the United Kingdom for 1977/78 however, were only 179,925 tonnes. Table 2.16 summarises exports of lamb by destinations since 1967.

Exports of lamb to Middle East destinations, North America and Japan are also important. Section 3.3.5 of this report will consider future developments in export markets.

2.3.3 Consumption and Exports of Beef and Veal

Consumption and exports of beef and veal since 1966/67 are shown in Table 2.17.

Table 2.17

New Zealand Production, Consumption and Exports of Beef and Veal ('000 tonnes)

Years ended 30th September	Production (carcass weight)	Export (Shipped weight)	Domestic consumption (carcass weight)	Per head Consumption (kg) (carcass wt)	Percent Consumed
1966/67	301.7	108.5	135.2	49.5	44.8
1967/68	344.7	127.8	133.7	49.1	38.8
1968/69	376.4	158.3	134.5	48.6	35.7
1969/70	392.8	174.5	132.1	46.8	33.6
1970/71	393.2	192.5	133.1	46.0	33.9
1971/72	409.9	178.7	135.7	46.0	33.1
1972/73	445.5	206.1	145.2	49.0	32.6
1973/74	404.7	167.5	144.7	48.0	35.8
1974/75	508.1	198.4	164..	53.0	32.4
1975/76	628.1	242.5	174.5	56.0	27.8
1976/77	557.7	255.1	186.2	59.5	33.4
1977/78	554.5	226.8	N/A	N/A	N/A

Source: Consumption figures - New Zealand monthly Abstract of Statistics.

Per head consumption of beef and veal in New Zealand dramatically increased, as it did in Australia, after the cattle market crash in 1974. This increase in

Table 2.18

New Zealand Exports of Beef and Veal by Major Destinations year ended 30th September for years 1970-71 and 31st December for years 1967-69.

Shipped weight (tonnes)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
United Kingdom	8,817	8,641	283	14,805	14,117	12,657	14,755	7,718	5,690	7,202	11,647	4,064
Other EEC	648	205	2,279	323	1,091	1,815	1,833	910	1,626	2,633	3,252	809
Greece	192	148	61	36	39	0	150	242	1,053	8,335	4	1
U.S.S.R.	0	0	0	5,025	6,346	0	0	1	4,779	18,048	36,257	9,443
Canada	2,292	2,782	35,239	38,770	29,328	20,545	21,846	25,578	23,826	38,163	24,296	28,552
U.S.A. (and Hawaii)	80,075	98,713	85,922	90,219	114,423	117,791	141,254	115,849	128,477	121,477	120,637	142,175
Middle East	2	0	38	0	3	39	151	446	3,937	4,298	6,046	3,361
Dahomey/Benin	0	0	0	0	0	0	0	0	0	0	0	0
Ghana	11	2	0	3	1	0	0	0	1,140	609	206	107
Ivory Coast	0	0	0	0	0	0	0	0	0	0	0	0
Liberia	2	3	13	9	2	3	0	2	0	42	41	0
Togo	0	0	0	0	0	0	0	0	0	0	0	0
Other African	16	28	23,977	397	14	0	0	29	698	224	241	7
Japan	3,026	1,778	1	2,533	4,131	3,421	8,353	2,294	1,097	3,057	2,263	6,590
Other	13,408	15,541	10,473	22,347	23,038	22,428	17,564	14,459	26,033	38,378	50,165	31,702
Total	108,489	127,841	158,285	174,467	192,530	178,699	205,906	167,528	198,356	242,466	255,055	226,811

Source: New Zealand Meat Producers Board

consumption occurred at the same time as production increased thus helping to dispose of this extra production. In fact the percentage of production consumed has remained relatively constant at around 34 percent.

Exports of beef and veal by major destinations since 1967 are shown in Table 2.18.

North America has consistently been the major market for New Zealand beef and is likely to remain so. Like Australia, the beef price crash in New Zealand in 1974 was the result of a significant drop in beef prices in the United States of America. The increased level of exports after 1974 was largely accommodated by the U.S.S.R., the Middle East and numerous specialised small markets in the Pacific and Eastern European areas.

2.4 New Zealand Meat Exports to Central West Africa

Central West Africa consists of Dahomey, Ghana, Ivory Coast, Liberia and Togo. They are not important markets for New Zealand meat. There have been no direct meat shipments since 1967 to Dahomey, Ivory Coast and Togo from New Zealand. However, every year Ghana and Liberia receive shipments of principally lamb although over the last three years they have also purchased quantities of beef. Full details of meat exports to Liberia and Ghana are shown in Tables 2.14, 2.16 and 2.18. AppendicesVI and VII show value of such exports.

Table 2.19 summarises total New Zealand meat shipments to Central West Africa since 1967. The shipments are insignificant when considered in relation to total New Zealand meat exports.

Table 2.19

New Zealand Meat Exports to Central West Africa

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Beef and veal shipped tonnes	13	5	13	12	3	3	0	2	1,140	651	247	107
Percent of total beef and veal exports	-	-	-	-	-	-	0	-	.57	.27	.01	-
Mutton shipped tonnes	0	0	57	7	6	0	114	0	0	0	0	0
Percent of total mutton exports	-	-	-	-	-	-	.11	-	-	-	-	-
Lamb shipped tonnes	394	437	458	660	548	219	286	761	508	722	618	8
Percent of total lamb exports	.13	.13	.13	.20	.16	.06	.09	.30	.17	.23	.20	-
Total meat shipment tonnes	407	442	428	679	557	222	399	763	1,648	1,373	865	115
Percent of total meat exports	.07	.07	.07	.10	.08	.03	.06	.13	.25	.20	.12	-

1966/67 - 1969/70 June 30 ending years
1970/71 - 1976/78 September 30 ending years.

Source: New Zealand Meat Producers Board

2.5 Shipping Arrangements between New Zealand and West Africa

The only shipping going to Africa are ships of Nedloyd (N.Z.) Ltd. However, these ships go to East African ports. They are principally for dry goods although some ships do also have 50,000 cubic feed of freezing space. The New Zealand dairy board does on occasion divert these ships to the West Coast of Africa with dairy products. Occasionally these ships will take frozen meat.

British Conference Lines ships did at one time service West Africa ports however, these ships are now containerised and as the West African ports can not handle containers, do not visit these ports.

At least 500 tonnes carcass equivalent is needed before shipping lines (e.g. Nedloyd) will divert to West African ports and even then it is difficult to generate any interest.

Mr. J. E. Dickie of Mair and Company Limited based in Christchurch,which is one of the principal New Zealand exporting companies operating to West Africa, reports that their company has to charter shipping and this requires 2-3,000 tonnes of meat. The shipping costs are approximately NZ$250/tonne during August to December rising to NZ$400/tonne from December to July.

Thus shipping of meat between New Zealand and West Africa is very difficult unless large quantities are involved. It should be noted that Mair and Company export to Nigeria and other non Central West African countries as well as above.

Further details covering shipping freight rates are included in Appendix IV.

3. PROJECTED NEW ZEALAND MEAT EXPORTS 1978/79 - 1984/85

3.1 Background Research to Meat Projections

During August and September 1977 the Agricultural Business Research Institute undertook a detailed on site assessment of the New Zealand sheep industry to determine the potential of this industry to supply lean lamb to Middle East markets. For this current study a further on site assessment of the New Zealand sheep and cattle industries was undertaken during August 1978. This involved detailed discussions with members of the New Zealand Meat Producers Board, New Zealand Meat and Wool Boards' Economic Service, Department of Agriculture and Fisheries, Department of Statistics, the Agricultural Economics Research Unit of Lincoln College and representatives of New Zealand meat exporting companies. These contacts provided the basic background information required for these projections.

3.2 Projected New Zealand Stocking Rate

Section 2.2.1 of this report concluded that increases in total stock numbers are very likely over the next few years. Investment on farms had increased over the last three years and this included increases in expenditure on fertilizer which is a very important prerequisite to increases in feed supply and consequently stocking rates in New Zealand.

In addition recent changes in New Zealand government policies should give New Zealand farmers confidence in the future and the incentive to increase stocking rates. The New Zealand government has now decided to establish and underwrite new minimum prices for agricultural products. These prices cover milk, wool, lamb, mutton and beef and are set at levels which will ensure reasonable levels of profitability for the average New Zealand farmer. In addition

the government has increased the levels of subsidy on fertilizers, has made available low cost loans to encourage the development of under-utilized land, introduced stock retention payments to encourage increases in stock numbers plus a number of other concessions. In other words, the government is actively encouraging New Zealand farmers to carry more stock.

Further evidence to support a projected increase in stocking rate was provided by the Agricultural Economics Research Unit of Lincoln College. They have recently completed a survey of New Zealand farmer intentions, expectations and opinions. This survey was conducted during the autumn of 1978. Preliminary results show that farmers plan to increase fertilizer use by 8.3 percent over 1977/78 levels during 1978/79. Also 34 percent planned to increase capital expenditure on the seeding or reseeding of pastures during 1978/79 while only 8 percent planned to decrease such expenditure. The majority of respondents were also confident of increases in lamb, wool and beef prices during 1978/79. Concerning changes in stock numbers during 1977/78, respondents increased dairy cow numbers by 4.2 percent, noted 2.5 percent more breeding ewes, however, reduced breeding beef cow numbers by 5.2 percent. Thus overall little change in total carrying capacity during 1977/78 is expected. However, increases are expected from 1978/79 through to 1983/84.

A summary of the projected stocking rate is shown in Table 3.1.

As can be seen in Table 3.1 it is expected that sheep numbers will rise faster than cattle numbers. New Zealand farmers traditionally have favoured sheep and it is expected will continue to favour sheep before cattle.

Table 3.1

New Zealand Projected Stocking Rate 1977/78 - 1984/85

Year ending 30th June	Cattle no. ('000)	Percent change in cattle nos.	Cattle S U ('000)	Sheep No. ('000)	Percent Change in sheep nos.	Sheep S U ('000)	Total Stock Units ('000)	Percent Change in Total Stock Units
1977/78	8,500	- 2.9	41,650	60,300	+ 1.9	56,941	98,591	
1978/79	8,500	0.0	41,650	61,425	+ 1.9	58,047	99,697	1.1
1979/80	8,585	1.0	42,067	63,268	+ 3.0	59,788	101,855	2.2
1980/81	8,670	1.0	42,483	65,166	+ 2.0	61,582	104,065	2.2
1981/82	8,757	1.0	42,909	66,469	+ 2.0	62,813	105,722	1.6
1982/83	8,844	1.0	43,335	67,792	+ 2.0	64,063	107,398	1.6
1983/84	8,932	1.0	43,767	68,470	+ 1.0	64,704	108,471	1.0
1984/85	8,932	0	43,767	68,470	0	64,704	108,470	0

3.3 Projected Exports of Mutton and Lamb

3.3.1 Projected Production of Mutton and Lamb

As was shown in Section 2.2.2 of this report there has been a strong recovery in sheep numbers over the last three years. This recovery has largely been at the expense of beef cattle numbers which have declined rapidly since the beef market 'crash' of 1974. It is now expected that the rate of increase in sheep numbers will steady due to a stabilising in the number of cattle. In other words the rate of increase in sheep numbers will be governed by the rate of increase in stocking rate and not influenced by substitution of sheep for cattle. The percentage of cattle on farms has now returned to traditional levels and also the cattle market has greatly improved thus encouraging farmers to consolidate their cattle numbers during 1978/79.

Sheep numbers are projected to increase slowly until the increased expenditure on fertilizer and pastures now taking place makes its impact on feed supply. From 1980 sheep numbers are expected to increase more rapidly before stabilising once again during the mid 1980's.

Table 3.2

New Zealand Projected Lamb Production 1977/78 to 1984/85

Year ending 30th June	Opening no. of sheep & lambs ('000)	Percent Change	Opening ewe no. ('000)	Percent breeding ewes in flock	Lamb marking percent of breeding ewes	Lambs marked ('000)	Percent of lambs slaughtered	Lambs slaughtered ('000)	Carcass Weight (kg)	Production tonnes ('000)
1977/78	59,105	+ 4.8	42,780	72.38	93.3	39,914	67.0	26,760	12.9	338
1978/79	60,300	+ 1.9	43,500	72.20	91.0	39,585	65.0	25,730	13.2	340
1979/80	61,425	+ 1.9	44,349	72.20	94.0	41,688	62.0	25,840	13.2	341
1980/81	63,268	+ 3.0	45,679	72.20	94.0	42,938	62.0	26,615	13.2	351
1981/82	65,166	+ 2.0	47,050	72.20	94.0	44,227	63.5	28,066	13.2	370
1982/83	66,469	+ 2.0	47,991	72.20	94.0	45,111	63.5	28,633	13.2	378
1983/84	67,792	+ 2.0	48,946	72.20	94.0	46,009	64.9	29,874	13.2	394
1984/85	68,470	+ 1.0	49,435	72.20	94.0	46,469	66.4	30,848	13.2	407

Projected lamb production through to 1985 is shown in Table 3.2. It is assumed that the percentage of lambs slaughtered is kept as high as possible after allowing for deaths, ewe replacements and projected build up in numbers. The projected level of lamb production is expected to increase each year over present levels to reach a peak of 407,000 tonnes carcass weight in 1984/85.

Projected mutton production through to 1985 is shown in Table 3.3. Mutton production is expected to increase each year reaching a peak of 214,000 tonnes carcass weight in 1984/85. This projection is made on the basis that no live sheep exports are made from New Zealand.

The projected movement in livestock numbers over the next seven years is shown in Table 3.4. This Table incorporates the slaughter rates embodied in Tables 3.2 and 3.3 and makes no allowance for live sheep exports. The balancing figure in Table 3.3 is sheep deaths.

Table 3.3

New Zealand Projected Mutton Production 1977/78 - 1984/85

Year ending 31st March	Opening no. of sheep & lambs ('000)	Percent Change	Percent of opening no. slaughtered as sheep	No. of sheep slaughtered ('000)	Carcass Weight (kg)	Production (tonnes '000)
1977/78	59,105	1.9	14.4	8,504	18.4	156
1978/79	60,255	1.9	13.9	8,347	20.0	167
1979/80	61,425	3.0	15.6	9,582	20.0	192
1980/81	63,268	2.0	15.6	9,870	20.0	197
1981/82	65,166	2.0	15.6	10,166	20.0	203
1982/83	66,469	2.0	15.6	10,369	20.0	207
1983/84	67,792	1.0	15.6	10,576	20.0	216
1984/85	68,470	0	15.6	10,681	20.0	214

Table 3.4

New Zealand Projected Movement in Sheep Numbers
1977/78 to 1984/85 ('000)

Year	Opening number	Lambs marked	Live Exports	Sheep & lambs slaughtered	Sheep deaths (a)	Percent of opening no. that die	Closing numbers
1977/78	59,105	39,934	-	35,264	3,475	5.9	60,300
1978/79	60,255	39,585	-	34,077	4,338	7.2	61,425
1979/80	61,425	41,688	-	35,422	4,423	7.2	63,268
1980/81	63,268	42,938	-	36,485	4,555	7.2	65,166
1981/82	65,166	44,227	-	38,232	4,692	7.2	66,469
1982/83	66,469	45,111	-	39,002	4,786	7.2	67,792
1983/84	67,792	46,009	-	40,450	4,881	7.2	68,470
1984/85	68,470	46,469	-	41,539	4,930	7.2	68,470

(a) balance figure - excludes lambs which died before marking

3.3.2 Projected Exports of Mutton

As was explained in section 2.3.1 of this report per head consumption of mutton has declined from 32 kg to 15 kg in 1976/77. This is largely the result of the substitution of relatively cheap beef for mutton. As beef prices improve so will the domestic consumption of mutton. As mutton supplies are expected to be plentiful, mutton consumption should increase at the expense of beef through to 1982/83 before levelling off. Table 3.5 projects likely consumption of export availability of mutton.

The export availability of New Zealand mutton is expected to increase only gradually because of the expected increase in domestic consumption.

Table 3.5

New Zealand Projected Production, Consumption and Exports of Mutton ('000 tonnes carcass weight)

Year ending 31st March	Production	Domestic Consumption	Export Availability (carcass weight)
1977/78	156.5	59	97.5
1978/79	167	66	101
1979/80	192	80	112
1980/81	197	85	112
1981/82	203	90	113
1982/83	207	95	112
1983/84	216	95	121
1984/85	214	95	119

3.3.3 Projected Exports of Lamb

Domestic consumption per head of lamb in New Zealand has remained relatively stable. It is expected that this situation will continue with domestic consumption increasing at approximately the same rate as the increase in population. Table 3.6 shows the projected domestic consumption and export availability of New Zealand lamb.

Table 3.6

New Zealand Projected Production, Consumption and Exports of Lamb ('000 tonnes carcass weight)

Year ending 30th September	Production	Domestic Consumption	Export Availability (carcass weight)
1977/78	338.1	35	303
1978/79	340	37	303
1979/80	341	39	302
1980/81	351	41	310
1981/82	370	43	327
982/83	378	45	333
1983/84	394	47	347
1984/85	407	47	360

3.3.4 Projected Export Destinations for Mutton

The most reliable long term market for New Zealand mutton has been Japan. Over the last eleven years Japan has taken on average 55 percent of all mutton shipments. During 1976 and 1977 this percentage declined to 27 percent largely due to strong competition from the U.S.S.R. for New Zealand mutton which unsettled the mutton market in Japan. The U.S.S.R. purchased 49 percent of all New Zealand mutton exports in 1977. However, the U.S.S.R. is an opportunistic buyer as illustrated by U.S.S.R. mutton purchases from New Zealand for 1978 which were only 8.3 percent of total mutton exports. The New Zealand Meat Producers' Board expects Japan to remain the major market for mutton in the future. However, they anticipate that increasing quantities will go to South Korea for processing prior to transhipment to Japan. Shipments to South Korea during 1977/78 have doubled compared with 1976/77 and now constitute approximately 25 percent of total mutton exports.

The United Kingdom has also consistently been a reliable mutton market for New Zealand. It is expected to remain important and expand as international beef prices increase forcing a substitution of mutton for manufacturing quality beef.

The Middle East has not been an important mutton market for New Zealand and is not expected to become important in the future. The exception could be the remote possibility of live sheep being exported from New Zealand.

Peru was once an important mutton market but is not expected to be again.

Africa is seen as a 'last resort' market for New Zealand mutton. The unpredictable politics of the region, the past history of slow payment for meat, and shipping problems make Africa an unpopular market. Maybe in the long term

Liberia or Morroco could offer some potential according to the Meat Producers' Board but otherwise Africa is not seen as an important market for New Zealand mutton.

Projected mutton export destinations are shown in Table 3.7.

Table 3.7

Projected Exports of Mutton by Destinations
Percent of Total Exports

Destinations	1977/78 (actual)	1978/79	1984/85
EEC	18.9	7.0	24
USSR	8.3	29.0	2
Caribbean	1.6	1.0	5
Middle East	1.0	2.0	1
Asia	67.1	6.0	67
Other	3.1	1.0	1
	100	100	100

3.3.5 Projected Export Destinations for Lamb

The United Kingdom has consistently been by far the major market for New Zealand lamb. Since 1967 the United Kingdom has purchased 80 percent of all New Zealand lamb exports. However, the future of this market and markets in other European Economic Community countries has become clouded because of a proposal by the E.E.C. Commission to introduce a Common Sheepmeat Regulation. However, while the terms of any such regulation are uncertain it would seem highly unlikely that New Zealand would be excluded from this market as there are substantial import requirements of lamb and mutton not only in the United Kingdom but also in France and, to a lesser extent, in Germany, Italy and Denmark. The New Zealand Meat Producers' Board projects that lamb exports to the United Kingdom will total about 200,000 tonnes annually until about 1980. After 1980 lamb

exports are expected to be increasingly diverted away from the United Kingdom market to Middle East markets because of EEC restrictions and better market prospects.

The Middle East has emerged as the second most important market for New Zealand lamb. In 1977/78 this market imported 10.8 percent of all lamb exports. Iran is the major Middle East destination. Assuming the internal problems do not harm this market, it is expected to expand at the expense of the United Kingdom market.

The North American market has also been a reasonably important lamb outlet. The New Zealand Meat Producers' Board via Devco (The Meat Export Development Co. (N.Z.) Ltd.) is heavily promoting New Zealand lamb with success especially in the hotel, restaurant and institutional sector. The Meat Producers' Board expects exports to this region to continue to expand.

Japan is another important lamb market however the Meat Producers' Board expects the rate of growth in this market to slow down. They are forecasting that it will reach a ceiling of about 25,000 tonnes in the late 1980's.

Africa is not an important lamb market. The most New Zealand lamb ever exported to this region was 1,308 tonnes in 1973 and this constituted less than .5 percent of total exports in that year. As was the case with mutton, it is seen as a 'last resort' market for lamb.

Projected lamb export destinations are shown in Table 3.8.

Table 3.8

Projected Exports of Lamb by Destination
Percent of Total Exports

Destinations	1977/78 (actual)	1978/79	1984/85
E.E.C.	66	78	33
Middle East	10.8	6	42
Asia	5.9	4	6
North America	7.3	8	10
Greece	4.9	0	6
Other	5.1	4	3
	100	100	100

3.4 Projected Exports of Beef

3.4.1 Projected Production of Beef

Section 2.2.3 of this report outlined the background to the large reduction in cattle numbers since the cattle market crash of 1974. With the improvement in cattle markets the decline in New Zealand cattle numbers is expected to stabilise in 1978/79 before starting a gradual rebuilding phase. The projected increase in cattle numbers is expected to occur at the same time sheep numbers increase and thus such increases will be the result of overall increases in stocking rates rather than any substitution between enterprises.

Projected New Zealand beef production through to 1985 is shown in Table 3.9.

Table 3.9

Projections for New Zealand Cattle Industry 1977/78 - 1984/85

Year ending 30th June	Opening no. ('000)	Percent Change in Total numbers	Cattle & calves slaughtered ('000)	Percent of opening nos. slaughtered	Productivity index	Av. carcass weight (kg)	Production ('000 tonnes)
1977/78	8,750	- 2.9	3,627	41.45	38.55	152.8	554.5
1978/79	8,500	0.0	3,230	38.00	38.00	150	485
1979/80	8,500	1.0	3,145	37.00	38.00	150	472
1980/81	8,585	1.0	3,176	37.00	38.00	150	476
1981/82	8,670	1.0	3,208	37.00	38.00	150	481
1982/83	8,757	1.0	3,240	37.00	38.00	150	486
1983/84	8,844	1.0	3,272	37.00	38.00	150	491
1984/85	8,972	0.0	3,394	38.00	38.00	150	509

It is assumed that as beef prices improve the

However, the potential for improvement of management is much less than in Australia with its presently extensive low management cattle-producing areas in the northern regions. New Zealand does not have an equivalent region and hence average management levels in New Zealand are higher than in Australia.

It is expected that New Zealand beef production will follow a very similar cycle to that of Australia. Production is expected to initially decline as numbers are increased before increasing again during the early 1980's.

3.4.2 Projected Exports of Beef

Domestic consumption of beef in New Zealand has been at record levels over the last four years. However, as beef prices rise it is expected that beef consumption will decline and other relatively cheaper products will be substituted for beef. Further details concerning domestic consumption assessments are contained in Appendix III.

Projected consumption and export availability of beef are shown in Table 3.10.

Table 3.10

New Zealand Projected Production, Consumption and Export of Beef ('000 tonnes carcass weight)

Year ending 30th September	Production	Domestic Consumption	Export Availability
1977/78	554.5	184	374.5
1978/79	485	180	305
1979/80	472	169	303
1980/81	476	170	306
1981/82	481	171	310
1982/83	486	172	314
1983/84	491	178	313
1984/85	509	186	323

3.4.3 Projected Export Destinations for Beef and Veal

The U.S.A. has consistantly been the major outlet for New Zealand beef and veal. Since 1967 60 percent of all beef and veal exports have gone to the U.S.A. However, imports of beef into the U.S.A. are regulated by a Meat Import Law and quotas determined under this law can be varied by Presidential Direction. At the present time new legislation has been drafted to change the current Meat Import Law. The most recent legislation known as the Poage Bill which includes a counter-cyclical quota system was passed by both Houses of Congress but vetoed by the President. If this Bill had become law it would not have effected New Zealand beef exports to the U.S.A. in the short term but would have seriously effected exports in about the mid 1980's. At that time U.S.A. beef imports under the Poage Bill formula would have been restricted below current law limits at a time of increasing beef and veal production in New Zealand.

Projected New Zealand exports of beef and veal to the U S.A. are based on U.S.D.A. forecasts of meat imports at trigger levels (110% of quota) under current

laws assuming the New Zealand quota is about 21 percent of imports. These projections are shown in Table 3.11. However, should a 'counter-cyclical' quota system be introduced by the United States, exports of beef and veal from New Zealand to the United States by 1984/85 will be less than projected in Table 3.11. Probably of the order of 45 - 50 percent of beef and veal exports.

Table 3.11

Projected Exports of Beef and Veal by Destinations
Percent of Total Exports

Destination	1977/78 (actual)	1978/79	1984/85
U.S.A.	61.0	70	58
Canada	12.6	13	10
U.S.S.R.	4.2	0	?
Asia	7.8	2.5	10
E.E.C.	2.1	1	1
Middle East	1.5	1	4
Other	10.8	12.5	15
	100.0	100.0	100

Exports of beef and veal to the U.S.S.R. in 1977 totalled 14 percent of exports however as was the case with mutton, exports of beef to the U.S.S.R. in 1978 have declined significantly. The U.S.S.R. is an opportunistic buyer and as such is an unpredictable purchaser of meats on world markets.

Exports of beef to Canada have been important and are likely to continue at about 13 percent of total exports in the medium term.

Exports of New Zealand beef and veal to the United Kingdom are not expected to grow but to slowly decline.

South Korea is seen by the Meat Producers' Board as being a growth market; however this market prefers bone-in quarter beef and the New Zealand industry is geared to exporting boneless beef. Australia is apparently better suited to supply this market. However, some growth is expected in the market for New Zealand beef

The Middle East is slowly growing as a market for New Zealand beef. This trend is expected to continue although Australia is better situated to supply this market because of a better shipping service and a year round supply of beef. New Zealand is a seasonal supplier of beef.

New Zealand has developed numerous specialised small markets in the Pacific and Asian areas and is expected to continue to service these markets.

Very little beef and veal is exported to African destinations. The New Zealand Meat Producers' Board expects little change in this situation.

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4. FUTURE ROLE OF MIDDLE EAST AND AFRICAN MARKETS FOR NEW ZEALAND MEAT EXPORTS

4.1 Future Role of Middle East Markets

During 1977/78 the Agricultural Business Research Institute co-ordinated a major study of the impact of the expansion of the Middle East for sheepmeat and live sheep on the structure of the Australian sheep industry. As a necessary part of this study consideration was given to the place of New Zealand in the Middle East market in the future. It was concluded that New Zealand exports of sheepmeat to the Middle East are likely to continue to expand in the short to medium term.

Middle East OPEC countries had a population of some 51 million in 1974 with a growth rate of 3.4 percent per annum. Domestic production of animal protein appears unlikely to increase at rate sufficient to match the rate of growth in population because of restricted supplies of arable land and water. However, unlike several developing countries with food needs in excess of domestic production, the Middle East countries at present have the ability to pay for increasing levels of imports of agricultural commodities.

Likely Middle East sheep and/or goat meat import needs in 1982 were estimated to range between 320,000 and 385,000 tonnes. This was calculated by firstly estimating total Middle East consumption of sheepmeat and goatmeat in 1982 by applying two alternative demand growth rates. The rates of 6.8 percent per annum and 7.9 percent per annum were originally computed for Iran to 1982/83 by the International Bank for Reconstruction and Development, and Bookers Agricultural and Technical Services Ltd., in conjunction with Hunting Technical Services Ltd., private consulting firms.

Domestic Middle East production for 1982 was estimated by applying an

average annual growth rate of 3.25 percent per annum to current domestic production. This rate of growth was estimated on the basis of FAO commodity projections to 1980.

The difference between estimated production and consumption represents the likely range of imports to the Middle East in 1982.

It was assessed that New Zealand would supply by 1982, 150,000 tonnes of sheepmeats mostly in the form of lamb out of the total 320,000 to 385,000 tonnes of imports required by Middle East countries.

Thus the future role of Middle East markets on New Zealand lamb production will be significant. It is expected that by 1985 about 42 percent of all New Zealand lamb exports will be sent to the Middle East. However, the Middle East is not expected to be an important market for New Zealand mutton or beef.

4.2 Future Role of African Markets

As explained already in this report, Africa has not been an important market for New Zealand meats and is very unlikely to become important in the future. Because of political uncertainties, major shipping problems and past difficulties from slow payment for meat imports, African markets, and especially West African markets, are seen by most New Zealand exporters as a last resort market.

Mr. J.E. Dickie of Main and Company Limited, New Zealand exporters of meat, reports that he does see some growth in his company's exports to West Africa. He sees Nigeria as being the most important market in this region. The demand is for cheap lamb cuts. The biggest problem in the future he sees as being policital and logistical. If these problems are not significant he sees New Zealand exports

to West Africa by 1979 consisting of 1,000 to 2,000 tonnes to Nigeria and 1,000 to 1,500 tonnes to Ghana of cheap lamb cuts.

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5. CONCLUSION

While it is projected that New Zealand exports of red meat will expand between now and 1985, it is not expected that New Zealand will have any problem in finding markets for such products. The traditional mutton and beef markets of Japan and the United States are expected to take increasing amounts of these products. The lamb markets for New Zealand however, are likely to change from a heavy traditional reliance on the United Kingdom to an increasing reliance on Middle East markets.

Exports of New Zealand meats to West Africa are expected to remain minimal. Thus such exports are not expected to directly affect the red meat markets of West Africa. However, there may be some indirect effects because of expected lamb exports to the Middle East.

APPENDIX I

Sheep Numbers, New Zealand

('000)

	As at 30th June										
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
SHEEP -											
Rams (1 year and over)	980	1,004	1,008	992	985	1,029	937	910	909	880	877
Breeding ewes (1 year and over)	41,408	42,651	43,385	43,017	44,152	41,017	40,366	41,108	41,108	41,200	42,782
Dry ewes (1 year and over)	379	488	383	432	490	426	361	315	336	344	1,405
Wethers (1 year and over)	2,703	2,401	2,038	1,767	1,732	1,584	1,223	1,275	1,300	1,158	
Lambs and hoggets (under 1 year)	14,560	13,930	13,124	14,173	12,688	13,692	13,146	13,017	11,667	12,818	14,041
Total sheep and lambs	60,030	60,474	59,937	60,276	58,912	60,883	56,684	55,883	55,320	56,400	59,105

Source: New Zealand Department of Statistics.

APPENDIX II

Cattle Numbers, New Zealand

('000)

Classification	as at 30th June										
	1967*	1978*	1969*	1970*	1971	1972	1973	1974	1975	1976	1977
MILK -											
Bulls 2 years and over used or intended for service	37	36	37	35	35	36	32	34	34	30	
Bull calves under 2 years intended for service	56	59	67	60	52	50	41	38	29	26	
Cows in milk and dry	2,236	2,344	2,415	2,445	2,431	2,206	2,133	2,092	2,107	2,074	
Heifers 1 year to 2 years	558	604	627	605	265	488	476	470	448	416	
Heifer calves under 1 year	618	653	646	583	395	469	463	423	374	378	
Bobby calves	-	-	-	-	-	39	14	16	6	5	
Total	3,505	3,698	3,793	3,729	3,198	3,288	3,159	3,074	2,998	2,930	
MEAT -											
Bulls 2 years and over used or intended for service	32	53	56	64	121	151	166	177	158	156	
Bull calves under 2 years intended for service	-	-	-								
Bred from cows and heifers 1 year and over	1,536	1,567	1,706	2,755	2,206	2,468	2,599	2,749	2,311	2,230	
Heifer cows under 1 year	539	573	598	635	642	691	767	799	794	788	
Other calves under 1 year	615	643	724	763	685	747	876	898	849	812	
Other cattle 1 year and over	1,499	1,713	1,728	1,831	1,142	1,287	1,357	1,614	2,182	2,101	
Total	4,241	4,549	4,812	5,048	4,796	5,344	5,765	6,237	6,294	6,087	
TOTAL ALL CATTLE	7,746	8,247	8,605	8,777	7,994	8,634	8,924	9,311	9,292	9,017	8,750

* as at 31st January.

Source: New Zealand Department of Statistics.

APPENDIX III New Zealand Meat Consumption

(i) Estimated Total Consumption - Red Meats (Tonnes '000)

Year ending 30 September	Beef & Veal	Lamb	Mutton	Pig Meats	Offal	Total
1970	132.1	26.8	86.8	38.6	14.6	298.9
1971	133.1	28.8	88.9	40.6	16.9	308.3
1972	135.7	33.5	95.4	42.4	16.7	323.7
1973	145.2	37.1	89.5	35.2	16.8	323.8
1974	144.7	32.2	84.2	33.0	14.3	308.4
1975	164.4	37.2	78.7	35.8	15.7	331.8
1976	174.5	37.6	66.5	35.1	17.3	331.0
1977	186.2	35.0	60.2	39.4	17.2	338.0
1978						

Source: Monthly Abstract of Statistics, June 1977.

(ii) Estimated Per Capita Consumption - Red Meats (Kilos)

Year ending 30 September	Beef & Veal	Lamb	Mutton	Pig Meats	Offal	Total
1970	47	10	31	14	5	107
1971	46	10	31	14	6	107
1972	46	12	32	15	6	111
1973	49	13	30	12	6	109
1974	48	11	28	11	5	102
1975	53	12	26	12	5	108
1976	56	12	21	11	6	106
1977	59.5	11.2	19.2	12.6	5.5	108

Source: Derived from Total Consumption using Population Figures for 31 March (Monthly Abstracts, June 1977)

(iii) Estimated Per Capita Consumption of White Meats (Kilos)

Year ending 31 December	Poultry	Fish
1970	5	6
1971	5	7
1972	7	5
1973	7	5
1974	10	5
1975	9	6

Source: New Zealand Official Year Book 1976
Department of Statistics and Food Banance Sheep 1975, Supplement to January-February 1977, Monthly Abstract of Statistics.

APPENDIX III (cont)

Projected New Zealand Red Meat Consumption

('000 tonnes carcass weight)

Year	Mutton	Lamb	Beef & Veal	Total
1978/79	66	37	180	283
1979/80	80	39	169	288
1980/81	85	41	170	296
1981/82	90	43	171	304
1982/83	95	45	172	312
1983/84	95	47	178	320
1984/85	98	47	186	328

Estimates of domestic consumption were calculated after allowing for a New Zealand population growth assumption based on the New Zealand Statistics Department's medium fertility, 5000 net migration estimate of 3.451 million head by 1984/85.

Table 4a Shipping freight rates for frozen meat from New Zealand (as at September 30, 1978, unless noted)

Approximate rates in New Zealand currency shown in brackets (Conversion US$0.946 = NZ$1.00 Stg £1.00 = NZ$1.864 as at September 29, 1978) These should be checked for variation before using table below

Destination	See Note	Currency	Lamb Carcases per 1000kg net		Lamb cartons per 1000kg gross		Mutton carcases per 1000kg net		Beef cartons per 1000kg gross		Fancy Meats cartons per 1000kg gross	
Australia	6	NZ$	See Container rates below									
Belgium	2,3a	STG£	199.4	(371.7)	159.4	(297.1)	168.0	(313.2)	128.0	(238.6)	134.0	(249.8)
Canada (East)	1	US$	See Container rates below									
Canada (West)	3b	US$	399.24	(377.7)	311.14	(294.3)	369.39	(349.4)	298.65	(282.5)	298.65	(282.5)
Cyprus	3a	STG£	239.1	(445.7)	199.8	(372.4)	208.1	(387.9)	167.4	(312.0)	173.6	(323.6)
Denmark	3a	STG£	238.0	(443.6)	198.5	(370.0)	206.7	(385.3)	166.7	(310.7)	171.9	(320.4)
East Africa		US$	354.75	(335.6)	286.35	(270.9)	302.4	(286.1)	233.3	(220.7)	244.5	(231.3)
France – Dunkirk	2,3a	STG£	199.4	(371.7)	159.4	(297.1)	168.0	(313.2)	128.0	(238.6)	134.0	(249.8)
France – Fos	3a	STG£	239.1	(145.7)	199.8	(372.4)	208.1	(387.9)	167.4	(312.0)	173.6	(323.6)
Germany	2,3a	STG£	199.4	(371.7)	159.4	(297.1)	168.0	(313.2)	128.0	(238.6)	134.0	(249.8)
Greece	3a	STG£	239.1	(445.7)	199.8	(372.4)	208.1	(387.9)	167.4	(312.0)	173.6	(323.6)
Hawaii	3b	US$	399.24	(377.7)	311.14	(294.3)	369.39	(349.4)	298.65	(282.5)	298.65	(282.5)
Hong Kong	3d	NZ$	312.71		*290.68		319.84		*284.66		*362.95	
Iraq		NZ$	435.0		250.0		435.0		250.0		250.0	
Italy	3a	STG£	239.1	(445.7)	199.8	(372.4)	208.1	(387.9)	167.4	(312.0)	173.6	(323.6)
Japan	3c	NZ$	306.83		*267.74		306.83		*254.62		*225.95	
Korea	3c	NZ$	306.83		*267.74		306.83		*254.62		*225.95	
Malaysia S'pore		US$	397.4	(375.9)	1180.59	(170.8)	397.4	(375.9)	1180.59	(170.8)	1180.59	(170.8)
Netherlands	2,3a	STG£	199.4	(371.7)	159.4	(297.1)	168.0	(313.2)	128.0	(238.6)	134.0	(249.8)
Norway	3a	STG£	238.0	(443.6)	198.5	(370.0)	206.7	(385.3)	166.7	(310.7)	171.9	(320.4)
Pacific – Fiji		NZ$	337.4		269.85		337.4		269.85		269.85	
Pacific – Tahiti		NZ$	350.0		350.0		350.0		350.0		350.0	
Persian Gulf (includes Iran)		NZ$	415.0		230.0		415.0		230.0		230.0	
Philippines	3d	NZ$	312.71		*290.68		319.84		*284.66		*362.95	
South Africa	3a	STG£	210.0	(391.4)	170.6	(318.0)	180.1	(335.7)	139.5	(260.0)	146.1	(272.3)
Sweden	3a	STG£	238.0	(443.6)	198.5	(370.0)	206.7	(385.3)	166.7	(310.7)	171.9	(320.4)
United Kingdom	2,3a,4	STG£	199.4	(371.7)	159.4	(297.1)	168.0	(313.2)	128.0	(238.6)	134.0	(249.8)
U S A (East)	1	US$	See Container rates below									
U S A (West)	3b	US$	399.24	(377.7)	311.14	(294.3)	369.39	(349.4)	298.65	(282.5)	298.65	(282.5)
West Indies Main Ports	5	STG£	256.7	(478.5)	208.6	(388.8)	218.8	(407.8)	170.7	(318.2)	178.1	(332.0)

*Nett weight †per cubic metre

Notes To Table 4a

Note 1.
U S A and CANADA (East Coast)
CONTAINER RATES
Carton beef and Fancy meats
House to pier US$5010 per container
House to house US$4695 per container
Carton lamb – Bone-in cuts
House to pier US$4223 per container
House to house US$3967 per container
RATES EFFECTIVE FROM JANUARY 1, 1979.

Note 2.
Rates are for conventional vessels
Minimum cellular container rates per container

Carcase lamb (PL, PM and OM)	STG£1595.2
Carcase lamb (YL, YM and OL)	STG£1485.6
Carton lamb (Bone-in)	STG£1673.7
Carcase mutton (ML1)	STG£1218.0
Carcase mutton (ML2, MH1, MH2 and MF)	STG£1276.8
Carton beef (Boneless)	STG£1945.6
Carton fancy meats	STG£1565.8
Carton chilled lamb	STG£2062.3
Carton chilled beef	STG£2243.0

Note 3.
a Rates effective from November 1, 1978 and subject to a negative currency adjustment of -2.24%
b Rates effective from January 1, 1979.
c Rates subject to a positive currency adjustment of +8.8%
d Rates subject to a negative currency adjustment of -2.48%

Note 4.
A charge of STG£0.70 per 1000kg is applicable to cover transit storage charges in U K

Note 5.
A rebate of STG£3.3 per 1000kg as freighted will apply to a full container of meat loaded at one export works for one cool store with a maximum of two bills of lading

Note 6
N.Z. –/ustralia container rates.
Wellington–Sydney 20 feet container – N.Z. $3060.

APPENDIX V

Value of New Zealand Meat Exports

Year ended June
(NZ$ million)

Country	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
U.K.	128.8	151.0	190.3	177.6	183.4	225.5	181.8	176.0	222.5	259.5	282.3
U.S.	79.9	101.5	109.3	133.5	141.4	185.9	180.7	138.0	182.1	209.6	234.3
Canada	3.0	8.2	37.3	26.0	26.5	29.3	32.4	30.2	56.2	53.3	64.3
Japan	22.9	26.4	31.6	24.0	31.1	60.0	55.7	30.6	50.8	54.2	67.6
E.E.C. (excluding U.K.)	11.2	11.3	17.4	20.4	30.9	37.5	25.0	20.7	36.3	40.7	40.8
Other destinations	15.3	17.4	28.0	33.5	34.4	47.5	89.8	88.9	126.6	256.8	207.5
Total	261.1	315.8	413.9	415.0	447.7	585.7	565.4	484.8	674.5	874.1	896.8

Source: Reserve Bank of New Zealand

APPENDIX VI

Value of New Zealand Exports to Liberia

$NZ F.O.B. June ending years

		1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
BEEF	tonnes	2.48	2.86	12.92	7.05	6.44	1.43	.75	0	.91	0	0
	$NZ	1618	1837	9857	6472	7527	2077	844	0	4946	0	0
VEAL	tonnes	.17	.25	0	1.97	0	0	0	0	0	0	0
	$NZ	124	195	0	1152	0	0	0	0	0	0	0
MUTTON	tonnes	0	0	0	0	0	0	0	0	0	0	0
	$NZ	0	0	0	0	0	0	0	0	0	0	0
LAMB	tonnes	.58	.69	4.0	1.71	1.38	0	1.42	0	.81	0	0
	$NZ	334	331	2177	815	792	0	782	0	1690	0	0
PRESERVED MEATS	tonnes	0	0	0	0	0	0	0	0	0	0	0
	$NZ	0	0	0	0	0	0	0	0	0	0	0
OFFAL	tonnes	0	0	0	1.29	.50	0	0	0	0	0	0
	$NZ	0	0	0	888	288	0	0	0	0	0	0
TOTAL	tonnes	3.23	3.8	16.92	12.02	8.32	1.43	2.17	0	1.72	0	0
	$NZ	2076	2363	12034	9327	8607	2077	1626	0	6636	0	0

1. 1976 figures do not include April, May, June 1976 shipments as the NZ department of statistics couldn't supply them.

NOTE: These figures are based on provisional data only as no final data was available for exports to Liberia. Also these figures do differ from New Zealand Meat Producers Board figures as to quantity exported. (June Vs Sept. ending year)

Source: Statistics of External Trade, Department of Statistics, New Zealand.

APPENDIX VII

Value of New Zealand Exports to Ghana

$NZ F.O.B. June ending years

		1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
BEEF	tonnes	10.23	1.53	0	2.43	.70	0	0	0	0	1165.26	581.42
	$NZ	7516	898	0	2075	621	0	0	0	0	488,278	418482
VEAL	tonnes	.23	.48	0	0	0	0	0	0	.5	0	0
	$NZ	206	532	0	0	0	0	0	0	601	0	0
MUTTON	tonnes	5.68	0	1.96	2.01	6.12	.14	.48	113.7	0	0	0
	$NZ	1556	0	734	1096	1620	100	170	88251	0	0	0
LAMB	tonnes	393.13	435.50	509.48	662.84	683.21	120.11	230.86	577.17	370.21	83	631.51
	$NZ	56662	78130	97303	109468	120348	29016	74833	286035	201071	27937	181484
PRESERVED MEATS	tonnes	15.44	2.02	6	0	0	0	0	0	0	0	0
	$NZ	9436	378	0	0	0	0	0	0	0	0	0
OFFAL	tonnes	2.04	9.25	0	54.81	.07	.03	0	.44	0	0	699.17
	$NZ	850	3797	0	7370	10	24	0	764	0	0	141046
TOTAL	tonnes	426.81	448.78	511.44	722.10	690.10	120.28	231.34	313.90	370.71	1248.26	191210
	$NZ	76226	83735	98037	120009	120979	29140	75003	375050	201672	516215	714112

1. 1976 figures do not include April, May, June 1976 shipments as the New Zealand Department of Statistics couldn supply them.

NOTE: These figures are based on provisional data only as no final data was available for Ghana exports. Also, these figures do differ from New Zealand Meat Producers Board figures as to quantity exported. (June Vs Sept. ending year)

Source: Statistics of External Trade, Department of Statistics, New Zealand.