2

IMPERIAL ETHIOPIAN GOVERNMENT

LIVESTOCK AND MEAT BOARD

SOUTHERN RANGELANDS LIVESTOCK DEVELOPMENT PROJECT

PART II - STUDIES AND SURVEYS

VOL 5: MARKET ANALYSIS

AGROTEC - C.R.G. - S.E.D.E.S. Ass. Rome, 1974

IMPERIAL ETHIOPIAN GOVERNMENT

LIVESTOCK AND MEAT BOARD

SOUTHERN RANGELANDS LIVESTOCK DEVELOPMENT PROJECT

PART II - STUDIES AND SURVEYS

VOL 5: MARKET ANALYSIS

C. S. O. Library

AGROTEC - C.R.G. - S.E.D.E.S. Ass.

Rome, 1974

SOUTHERN RANGELANDS LIVESTOCK DEVELOPMENT PROJECT

PROJECT DOCUMENTS

PART I - GENERAL REPORT

- ANNEXES: PROJECT INVESTMENTS

- APPENDIXES: ECONOMIC AND FINANCIAL ASPECTS

PART II - STUDIES AND SURVEYS

Vol. 1 - RANGE ECOLOGY

Vol. 2 - SOCIOLOGY AND PASTORAL ECONOMY

- APPENDIX I - BORANA PLATEAUX

- APPENDIX II- WESTERN SOMALI LOWLANDS

Vol. 3 - ANIMAL HUSBANDRY AND HEALTH

- PART I : ANIMAL HUSBANDRY

- PART II : ANIMAL HEALTH

Vol. 4 - SURFACE HYDROLOGY AND GEOHYDROLOGY

- APPENDIX - STATISTICS

Vol. 5 - MARKET ANALYSIS

PART III - M A P S

L E G E N D

The values are expressed in Ethiopian Dollars (Eth.$).

Currency Equivalents: 1 U.S. $ = 2.30 Eth.$

1 Eth. $ = .435 U.S.$

Weights and Measures: Metric System

Abbreviations:

- E.E.C. - European Economic Community
- I.B.R.D. - International Bank for Reconstruction and Development
- I.D.A. - International Development Agency
- I.E.G. - Imperial Ethiopian Government
- L.M.B. - Livestock and Meat Board
- M.A. - Ministry of Agriculture
- P.M.E.A. - Permanent Mission in Eastern Africa
- S.R.L.D.P. - Southern Rangelands Livestock Development Project
- W.B. - World Bank

Data refer to 1972 unless otherwise specified.

TABLE OF CONTENTS

Page

INDEX OF TABLES

INDEX OF TABLES

Page

1. INTRODUCTION

This report analyses the input market in Ethiopia and the domestic and international markets of livestock products. The market survey intended to explore in detail the more striking Ethiopian economic aspects, in consideration of the establishment of the Southern Rangelands Livestock Development Project and particularly in order to evaluate the implications on the cost of inputs and the prices of outputs.

As regards the input market, we have taken into account the following:

- agricultural products and agricultural and industrial by-products available on the domestic market for the nutrition of animals and their relative prices;
- the present situation of domestic and international transportation means and the prospects for their utilization;
- the available building materials and their costs for the construction of fences, houses and farm buildings;
- the cost of road construction and maintenance.

The report does not take into consideration the market for other means of production, i.e. agricultural machinery, industrial equipment and plants etc. Information on these items can be found in the section of the General Report, concerning the investments.

As regards the output market, we are analysing here the domestic and international market of meat and abattoir by-products in the aim of determining the existing and potential outlets of the Southern Rangelands's production.
On the basis of this information, we have drawn up the market hypothesis necessary for the economic and financial evaluation of the investment projects.

The market survey carried out in Ethiopia investigated other aspects of the present economic situation, such as the labour market, traditional livestock market, mechanical equipment market and import regulations, etc. No detailed information is given here on these aspects, although they were taken into account in the elaboration of the investment projects.

[illegible] in Ethiopia and the necessary [illegible] products. The market survey [illegible] the more striking Ethiopian economic [illegible] the potential market of the Southern Range- [illegible] particularly in order to [illegible] cost of inputs and the prices of [illegible]

[illegible] taken [illegible] to account the following:

[illegible] agricultural and industrial by-products [illegible] for the nutrition of animals and [illegible]

[illegible] international transportation [illegible] classification;

[illegible] and their [illegible] for the construction [illegible]

[illegible] maintenance.

[illegible] the market of other [illegible] machinery, industrial equipment and [illegible] can be found in the section [illegible]

[illegible] output aspect, we are analysing here the domestic and [illegible] market of meat and of other by-products in the aim of [illegible] and potential [illegible] of the Southern Range- [illegible]

[illegible] this information, we have drawn up the market hypothe- [illegible] and financial evaluation of the project [illegible]

[illegible] carried out in [illegible] investigated other aspects [illegible] situation, such as the [illegible] market, trans- [illegible] mechanical equipment market and import [illegible] detailed information is given [illegible] of them [illegible] although they were taken into account in the [illegible] [illegible] products.

2. FACTOR MARKET

2.1. Feeds for the beef industry

By and large Ethiopia has considerable amounts of material that could be utilized by a modern feed industry. Prices of these feeding materials are competitive with those of most developed countries; however the lack of a profitable market for quality meats has prevented so far any real development of the feed industry in the country. In a few words, under the present Ethiopian market situation, the obtainable price for first calss beef would probably not be enough to pay for the costs (even low) of the feeds necessary to yield a good product.
It is clear therefore that the utilization of concentrated feeds will become economically profitable only when and if export and domestic market for quality beef is expanded and developed. In the present market situation, the utilization of concentrated feeds instead of forage would prove economically meaningless, except in a few specific conditions.

Our survey of the feed-grain industry, discosed that presently there are only a few small-scale operators, with an individual sales capacity in the vicinity of 1,000 t per year while the bulk of feed production seems to be destined mainly to poultry farmers;only little is consumed by hog producers and dairy farmers. Even with the anticipated arrival of a moder manufacturer from Northern Europe, we do not foresee any significant change in the utilization pattern in the very near future, as we believe that the narrow market for meats is the limiting and key factor.

Ethiopia traditionally produces large amounts of cereals used mainly for human consumption. As a result, sizable quantities of waste and other by-products suitable for animal feeding become available at the processing and storing plants. This is the case of brans at wheat mills, and malt residue at breweries.
These feed materials, some 40,000 tons of which are estimated to be readily available, may be purchased at an average price of 5 Eth. $/quintal.

It must also be taken into consideration the possibility of producing cereals specifically for the livestock industry.

[illegible] Indus[illegible]

[illegible] although [illegible] amount of material that [illegible] utilized by a modern food industry. Instead of these [illegible] possibilities [illegible] there is [illegible] a profitable market for quality [illegible] real development of the [illegible] under the present [illegible] give such price for first class [illegible] not [illegible] pay for [illegible] of [illegible].

[illegible] therefore [illegible] of [illegible] economically [illegible] only [illegible] export and [illegible] for quality [illegible] developed and developed. In [illegible] of [illegible] would prove economically [illegible] a few [illegible] conditions.

[illegible] the [illegible] industries, disclosed that [illegible] only a few small-scale [illegible], with an [illegible] 000 t per year while the [illegible] to be destined mainly to poultry [illegible] by hay producers and dairy [illegible] with the anticipated arrival of a [illegible] we do not foresee any significant [illegible] the utilization [illegible] in the [illegible] future, [illegible] that the [illegible] market for [illegible] the limiting [illegible] factor.

[illegible] traditionally produces large amounts of [illegible] for human consumption. As a result [illegible] and other by-products suitable for animal feeding [illegible] at the processing and [illegible] plants. This is the case [illegible] at [illegible] mills, and malt [illegible]

[illegible] materials, some 20,000 t [illegible] readily available, may be purchased at [illegible] price of [illegible].

[illegible] also be taken into consideration the possibility of [illegible] specifically for the [illegible] industry.

Corn, especially in the case of hybrid (though seeds are very expensive in Ethiopia) seems the most promising cereal. As elsewhere in the world, this versatile plant can be used as grain, wet corn and corn silage. This last form plays the major role in modern beef intensive fattening operations, and has to be taken into consideration in all cattle preparation and finishing shemes. According to the Report n° II - The Feasibility of producing cereal grain crops for export markets (1), there is quite a range in the estimated costs of production of corn (from 7 to 14 ETH. $ per quintal (2). Since we envisage its utilisation on the farm, we may consider 9 Eth.$ per quintal a typical cost of production.

The examples reported for a few cereals may be extended also to barley, sorghum, teff, etc.., that are produced and consumed in large quantities in Ethiopia.
Considering the amount of waste and by-products of the milling, food and beverage industries, more than 100,000 tons per year of these materials could be potentially utilized by the feed industry.

A similar situation apparently exists also in the field of pulses, where Ethiopia traditionally exports large quantities abroad (see table 1). In the export trade, cleaning and grading of beans and other pulses is a necessity and as a result up to 20% of the original raw material is discarded and may become an excellent base for further convenient utilization in the feed industry.

---

(1) Prepared in May, 1972 for the Planning and Programming Department of the Ministry of Agriculture by Experience, Inc. Mineapolis.

(2) Our field survey revealed that the commercial cultivation of corn in Ethiopia, by using hybrid varieties, has the following yields and costs of production:
- in rain farming and with a yearly rainfall of 1,000 mm and over:
  . actual corn yield 35 - 65 q/ha
  . actual costs of production 450 - 600 Eth.$/ha
- in irrigated farming:
  . expected corn yield 35 - 65 q/ha
  . expected costs of production 650 - 800 Eth.$/ha.

We believe however that the utilization of corn varieties more suitable to local climatic (altitude and latitude) and agricultural conditions should bring by itself a substantial increase in the corn yields obtainable at the present time, especially under irrigation.

[illegible] the case of hybrid [illegible] become the most promising cereal. [illegible] possibility [illegible] to corn [illegible], has been [illegible] plays the major role in [illegible] cropping [illegible] if it be taken into [illegible] utilization and [illegible] for these [illegible] of producing corn [illegible] there is quite a range in the [illegible] cost of corn (from [illegible] to [illegible] per quintal (2) [illegible] on the farm. We now consider [illegible] costs of production.

[illegible] may be calculated also [illegible] produced and consumed in [illegible]

During the [illegible] by-products of the milling [illegible] average [illegible] per year of these [illegible]

[illegible] in the field of pulses [illegible] additional [illegible] in that effort [illegible] and quality of beans and [illegible] as an excellent base [illegible] in the local industry.

[illegible] for the [illegible] Department of the Ministry of Agriculture [illegible]

[illegible] survey revealed that the [illegible] by using hybrid varieties, [illegible] the following [illegible] production:

[illegible] rain farming and with a yearly rainfall of [illegible]

- actual corn yield 35 - 65 q/ha
- actual costs of production [illegible]

[illegible] irrigated farming:

- expected corn yield [illegible] q/ha
- expected costs of production [illegible]

We believe however that the [illegible] climatic (altitude and latitude) [illegible] conditions should bring [illegible] corn yields obtainable at the present time, especially under irrigation.

Concentration of supply is determinant in order to handle economically these materials and in this case only the quantities available by large exproters become suitable for the utilization by the feed industry. All in all, about 15 - 20,000 tons of low grade pulses seem potentially available for animal feeding, with the possibility also of direct utilization of horse-beans that quote 18-20 Eth.$ per quintal and are exported in large volumes. Low grade pulses may be purchased at an average price of 4.50 Eth.$ /quintal. According to local source of information, this price applies to low grade pulses (broken, partly wormy and with a high content of impurities) which are unsuitable for human consumption.

The case of molasses is unique. Up to now, aside from small amounts processed by alcohol distillers, the bulk of 45,000 tons produced annually on the average was used as a fertilizer or to lay dust on the roads. There is a rumor that recently a 5-years contact effective by 1974 was signed between H.V.A. International N.V. and a French company for the shipment of 200,000 tons worth 8 millions dollars during the following five years. This huge contract would secure the almost entire output in molasses leaving very little for the domestic market (some 10,000 tons). Molasses for beef fattening shemes can be a factor of paramount importance. Already the present price of 3 - 4 Eth $ per quintal could compare favourably with beef prices.

Ethiopia is known in the world market for its production of oilseeds that are exported as such, or often as cakes and meals, by-products of the local oil industry. In recent years the world shortage of fish and meat meals has created an ever growing market for oilseed meals, that thave become a determinant factor for the economic supply of proteins required by the feed industry. Ethiopia has large quantities available and a fair potential for expansion at reasonable prices. Anothre important characteristic is the concentration of supply of meals in the few important seed-crushing plants of Ethiopia.

According to prominent spokesmen of the oil industry, in March 1973 prices were reflecting the world bullish market for these commodities but they were still favourably low (some 60-70 % less) in comparison with the quotations prevailing in Europea, where oilseeds and meals generally enter without paying any duty. Accordingly, the following prices were applied,at the time of the interviews, by oilseed meal expellers at crushing plant gate:

[illegible] is determined in order to handle or sure [illegible] in this case only the quantities availa-[illegible] become suitable for the utilization by the [illegible] in all, about 15 - 20,000 tons of low grade pul-[illegible] available for animal feeding, with the possi-[illegible] of utilization of horse-beans that quote 15-20 [illegible] are exported in large volumes. Low grade [illegible] purchased at an average price of 4.50 [illegible] quintal. [illegible] of information, this price applies to [illegible] broken, [illegible] and with a high content of [illegible] unsuitable for human consumption.

[illegible] to now, aside from small amounts [illegible] distilleries [illegible] 25,000 tons produced [illegible] used as a fertilizer or to [illegible] [illegible] that recently a 5-years contract [illegible] signed [illegible] International N.V. and a [illegible] 000 tons worth 3 million [illegible] the following five years. This huge contract would [illegible] leaving very little [illegible] market [illegible] tons). Molasses for beet [illegible] be a factor of paramount importance. Already [illegible] 3 per quintal could prepare favoura-[illegible].

[illegible] in the world market for its production of oil-[illegible] exported as such, or often as cakes and meals, by-[illegible] oil industry. In recent years the world short-[illegible] has created an ever growing market for [illegible] have become a determinant factor for the eco-[illegible] proteins required by the feed industry. Ethiopia [illegible] available and a fair potential for expansion [illegible]. Another important characteristic is the [illegible] of meals in the few important seed-crushing [illegible].

[illegible] spokesmen of the oil industry, in Addis [illegible] reflecting the world bullish market for these commodi-[illegible] still favourably low (some [illegible] $ less) in com-[illegible] quotations prevailing in Europe, where oilmeals [illegible] enter without paying any duty. Accordingly [illegible] were applied, at the time of the interview, [illegible] expelleds at crushing plant gate:

Oilseed meal	protein content %	prices as of March 1973 Eth$/q	Estimated reasonable prices under normal market conditions (Eth.$/q)
Linseed	36	20	12 - 15
Cottonseed	46	16	10
Rapeseed	38	14	8 - 9
Nigerseed	34	14	8 - 9

SOURCE : local traders

The possibility of utilizing whole cottonseed must also be considered for those areas where transportation costs would make any other destination forbidding.

Noteworthy to mention is also the availability of fish and meat meal in Ethiopia. Quantities are still negligeable (in the area of 2-3,000 tons), but there is a future potential in this sector. Export data show that the FOB price of fishmeal in 1971 was 35 Eth.$ per quintal, while meatmeal quoted an avereage of 20 Eth.$ per quintal. With present price tension in the world markets, it seems that any future scheme should take into account a cost for these feeding materials at least double of the reported quotations (see tables 1,2,3,4 and 5).

2.2. Transportation

Practically there are two different situations: in the case of inland transportation and the case of export, with the consequent utilization of merchant ships or airplanes.

2.2.1. Transportation within Ethiopia

For the requirements of our project we do not consider the case, widespread in Ethiopia, of live animals moved on foot to the market. The remaining possible alternatives are the transportation of meat and live cattle by road or by railway from Addis Ababa to the port of Djibouti, in the case of exports.

Reportedly, the Chemin de Fer Franco-Ethiopien has presently available two refrigerated railcars, each having a capacity

Prices of reasonably priced under current market conditions (EthDlr)	[illegible] Markets 1969 EthDlr	[illegible]
14 - 15	20	35
10	16	10
8 - 9	14	12
8 - 9	12	14

[illegible]

[illegible] of [illegible] (oilseeds) can [illegible] be considered [illegible] where [illegible] would make any other [illegible].

[illegible] is also the case [illegible] (in the area of 2 [illegible]) there is a future potential [illegible]. Export [illegible] FOB price [illegible] in 1971 was [illegible] per quintal [illegible] of 70 Eth.$ per quintal. [illegible] in the world markets, [illegible] goods that are [illegible] take into account [illegible] for these [illegible] of the exported quantities (see tables [illegible]).

[illegible]

[illegible] there are two different [illegible] in the case of [illegible] and the case of export, with the [illegible] merchant ships or airplanes.

[illegible] within Ethiopia

[illegible] requirements of our project we do not consider [illegible] in Ethiopia, [illegible] live animals [illegible] to the market. The remaining possible alternatives [illegible] transportation of meat and [illegible] by road or by rail- way from Addis Ababa to the port of Djibouti, [illegible] airports.

[illegible] the [illegible] available [illegible]

of 15 tons of boneless beef or 70 carcasses. The tariff for this type of transportation would be 70.70 Eth.$/tons from Addis Ababa or 7 cents per kg.
For the transportation of live animals by railway, the Administration of the Ethiopian Railway, at the time of our survey in February 1973, charged the followint differentiated rates:

a) for a minimum 23 sq.m freight space:

	Eth.$/sq.m	Additional charges
A.A./Nazareth	5.10	20 eth.$/wagon
A.A./Awash	10.40	20 " "
A.A./Mieso	13.80	20 " "
A.A./Djibouti	32.00	20 Eth$:wagon + 0.70 $/t for entry into the port

Since an adult cattle occupies an average 1.2 sq.m space, the cost of transportation per head in a 23 sq.m freight space (i.e. 20 cattle) is:

	Eth.$/head	Additional charges
A.A./Nazareth	7.12	
A.A./Awash	13.48	
A.A./Mieso	17.56	
A.A./Djibouti	39.40	0.70 $/t for entry into the port

b) special tariff for regular cargo freight space for export:

	Eth.$/sq.meter
- minimum 250 sq.m/month	
Awash - Djibouti	19.00
- minimum 200 sq.m/month	
Nazareth/Djibouti	15.40 on the port
Awash/Djibouti	12.50 " "
Mieso/Djibouti	10.50 " "
Dire Dawa/Djibouti	8.60 " "
Addis/Djibouti	no export up to now

The tariff for other goods in containers from Nazareth (or Mojo) to Dijibouti is 55 Eth.$/t or 5.5 cents/kg. Other charges involved in the utilization of the rialway system are: 30 Eth.$ per railwagon for loading, 2% ad valorem for customs duty, and 10 Eth. per wagon for registration fee to the Chamber of Commerce. The actual time required for transportation from Dire Dawa to Djibouti is about 1 night.

Compared to the railway system the utilization of trucks presents the advantage of a larger flexibility as to reaching all ports of interest and meeting all dates of delivery.

[illegible] of [illegible] boat or 7) containers, the tariff for [illegible] transportation [illegible] 25.25 [illegible] from [illegible] per [illegible].

[illegible] the transportation of live animals by railway, the administration of the [illegible], at the time of [illegible] 1975, charged the following [illegible]

[illegible] freight [illegible]

[illegible]	[illegible]	Additional charges
[illegible]	.10	20 [illegible]
[illegible]	10.30	20
[illegible]	13.5	[illegible]
[illegible]	12.00	20 [illegible]
		[illegible] entry into the port

[illegible] 1.2 [illegible], the [illegible] freight [illegible]

[illegible]	[illegible]	Additional charges
[illegible]	[illegible]	
[illegible]	[illegible]	
[illegible]	50	
[illegible]	.1	[illegible] for entry into the port

[illegible] tariff for regular cargo freight [illegible]

	[illegible]
[illegible] sq.m/month	
[illegible] month	[illegible]
minimum [illegible] sq.m/month	
[illegible] month	[illegible] for the port
[illegible] month	
[illegible] month	
[illegible] month	8.50
[illegible] month	to [illegible]

The tariff for [illegible] goods in containers from [illegible] to Djibouti is [illegible] or [illegible] involved in the [illegible] of the [illegible] 20 [illegible] per [illegible] for [illegible], customs duty, and 10 [illegible] per [illegible] for [illegible] Chamber of Commerce. The [illegible] transportation from Dire Dawa to [illegible] is about [illegible].

Compared to the railway [illegible], the [illegible] of [illegible] presents the advantage [illegible] larger flexibility as to reaching all parts of interest and [illegible] all [illegible].

Table 1 - Ethiopia, annual export of cereals and pulses (Tons)

	1967	1968	1969	1970	1971
Wheat	14	--	--	--	0.3
Maize	19	32	50	23	120
Durrah	972	941	3,811	2,927	3,547
Lentils	15,031	22,089	24,534	15,751	18,000
Field peas	853	247	1,778	436	511
Horse beans	24,749	18,470	27,420	15,641	16,583
Haricot beans	17,885	19,329	16,672	17,134	22,569
Chick peas	10,724	13,863	7,981	2,148	6,342

Source: I.E.G. - Ministry of Finance - <u>Annual External Trade Statistics</u>, 1970 - 1971

Table 2 - Ethiopia, annual exports of oilseeds (Tons)

	1967	1968	1969	1970	1971
Linseed	9,689	3,715	290	1	99
Sesame	19,752	27,015	30,683	39,739	35,991
Ground Nuts	1,589	3,083	1,866	651	1,327
Other seeds	4,804	1,444	1,084	735	571
Castor seeds	1,919	1,056	1,962	735	1,263
Cotton seeds	11,206	6,891	9,878	7,289	12,982
Niger seeds	8,841	6,933	10,323	7,163	11,018

Sources: I.E.G. - Ministry of Finance - Annual External Trade Statistics, 1970-1971.

Table 3 - Ethiopia, annual exports of cakes and meals (Tons)

	1969	1971
Meals and Cakes of:		
- Fish	340	480
- Meat	475	1,601
- Niger seed	11,078	6,418
- Sesame seed	676	105
- Ground Nuts	2,013	2,407
- Rape seed	4,934	1,662
- Linseed	8,657	18,869
- Cotton seed	6,457	10,714

Source: I.E.G. - Ministry of Finance - Annual External Trade Statistics, 1969 - 1971

Table 4 - Ethiopia, output of food industries from which by-products are potentially available for animal feeding

		1965/66	1966/67	1968/69	1969/70
Food Industry					
Meat, frozen	tons	8,000	2,920	3,630	3,916
Meat, canned	tons	8,000	75,035	5,474	5,226
Sugar	tons	68,861	76,868	66,199	96,967
Edible oil	tons	5,343	8,146	8,157	10,026
Flour of wheat	tons	42,030	58,952	41,536	40,019
Macaroni	tons	4,076	4,523	8,263	5,355
Biscuits	tons	150	314	2,670	329
Sweets	tons	820	1,219	1,340	1,672
Milk pasteurised	hl	69,658	70,470	100,507	78,345
Beverages					
Beer	hl	184,600	215,500	238,737	280,239
Wine	hl	45,900	44,131	50,237	50,950
Liqueurs	hl	28,313	17,760	42,618	42,140
Alcohol	hl	12,791	4,222	9,664	10,019

Source: I.E.G. - Central Statistical Office *Statistical abstract* 1970 - 1971,

TABLE 5 - ETHIOPIA, PRODUCTION OF SELECTED COMMODITIES

CROP	1968/1969			1969/1970			1970/1971		
	AREA ('000 ha)	YIELD (q /ha)	PRODUCTION ('000tons)	AREA ('000 ha)	YIELD (q /ha)	PRODUCTION ('000tons)	AREA ('000 ha)	YIELD (q /ha)	PRODUCTION ('000tons)
CEREALS									
BARLEY	1,713.9	8.5	1,462.6	1,734.8	8.6	1,495.6	1,756.0	8.7	1,529.3
MAIZE	837.7	10.5	880.4	847.1	10.7	909.0	863.6	10.9	939.0
SORGHUM	1,186.6	8.5	1,007.3	1,203.2	8.6	1,036.8	1,218.6	3.8	1,066.8
TEFF	2,175.5	6.1	1,323.3	2,197.3	6.1	1,342.6	2,217.8	6.1	1,362.2
WHEAT	1,049.2	7.5	782.0	1.070.3	7.6	808.0	1,091.6	7.7	839.5
OTHER (DAGUSA)	300.8	5.1	152.4	302.3	5.1	153.9	303.8	5.1	155.4
INDUSTRIAL CROPS									
COTTON FIBER	71.2	1.6	11.7	83.1	1.7	13.7	96.5	1.7	16.2
ENSETE FIBER	194.7	1.0	12.8	198.5	1.0	13.1	202.5	1.0	13.4
SISAL	3.7	7.5	2.8	4.0	7.7	3.1	4.3	8.1	3.5
SUGAR CANE	5.9	1,460.2	861.5	7.5	1,506.0	1,129.5	8.7	1,476.2	1,284.3
OIL SEEDS									
CASTOR BEANS	21.7	5.4	11.8	21.9	5.6	12.3	22.1	5.8	12.8
COTTON SEEDS	71.2	3.3	23.5	83.1	3.3	27.4	96.5	3.4	32.5
GROUND NUTS	38.8	5.4	20.9	39.9	5.6	22.4	41.0	5.9	24.2
LINSEED	117.6	5.1	60.1	120.0	5.2	62.1	122.4	5.3	64.4
NEUG	393.6	6.3	249.5	403.2	6.4	258.6	413.1	6.5	268.2
RAPE SEED	14.1	4.0	5.7	14.2	4.1	5.8	14.4	4.1	5.8
SUNFLOWER	59.8	5.3	31.7	61.1	5.3	33.7	62.4	5.8	36.2
SESAME	126.5	4.7	59.7	140.5	4.9	69.4	153.5	5.3	81.3
PULSES									
CHICK-PEAS	289.9	6.2	180.5	294.2	6.3	185.3	298.6	6.4	191.2
FIELD PEAS	133.5	9.3	123.9	135.0	9.4	126.4	136.2	9.5	129.4
HARICOT BEANS	92.8	7.6	70.1	93.7	7.7	72.3	94.6	7.9	74.6
HORSE BEANS	140.2	9.4	131.5	144.0	9.6	137.8	147.3	9.8	144.9
LENTILS	172.3	6.0	103.4	174.4	6.1	106.5	175.8	6.3	110.6
FENUGREEK	10.2	6.0	6.2	10.3	6.0	6.2	10.4	6.1	6.3

SOURCE: I.E.G. Central Statistical Office - Statistical Abstract , 1971.

In the case of road transportation, three alternatives have to be considered: operation with the farm's own trucks, or hiring truck services with a rather rigid long-term contract, or a combination of both with a share of the volume of business respectively of 70 % and 30 %.
The first case is definitely the most advantageous, aside from the investment involved and the burdensome organization and management of all related services (garage, spare parts, stocks, repair shop, hiring of drivers, etc..).
Under present circumstances , the idle periods of the trucks are determinant for an adequate economic utilization of the farm's own vehicles. As an indication,from the Southern Rangelands to the port of Asab 4 to 5 trips a month would be considered a success. The truck would be manned by 1 driver and 1 assistant. Presently, a driver's monthly wages rage from 400 to 600 Eth.$. In view of the necessity of having spare parts available on the spot, only well-known truck manufacturers should be taken into consideration.
A very popular means of transportation would be the type of truck presently assembled in Ethiopia, and which has an estimated life of 4 to 6 years.

The cost of truck transportation can be calculated only by approximation. It varies from the distance to be covered, the frequency and regularity of shipments, the possibility of transporting materials on the way back, etc. In addition, big differences of cost are determinied by the utilization of special or normal equipped trucks.
For analytical purposes, the cost per animal can be evaluated as follows:

Distance	Normal truck	Special truck
100	12.4	5.3
200	20.2	8.7
300	28.0	11.5
400	34.6	14.1
500	43.3	17.6
600	56.2	23.0

The case of hiring truck services on an annual basis has certainly some merits, especially since the overall organizational structure would be taken care of by an outside private firm. The fact, however, of depending entirely on outsiders for transportation would certainly constitute a weak link in the integrated structure of the operation.
As far as rates are concerned, information are rather poor.
Recently MAESCO has shipped several animals from Melka Sadi

[illegible] case of road transportation, three alternatives have [illegible] considered: operation with the farm's own trucks, or [illegible] truck services with a rented (or leasing contract), [illegible] combination of both with a share of the volume of haul[illegible] amount each of 50 % and 50 %.

[illegible] the most advantageous, while [illegible] investment involved and the continuous organiza- [illegible] equipment, [illegible] stop, hiring of drivers, etc.). [illegible] seasonal peak periods of the trucks [illegible] origination of the [illegible] deliveries from the Southern [illegible] a truck would [illegible] truck would be operated by [illegible] would only [illegible] in view of the necessity of [illegible] only well-known [illegible] taken into consideration. [illegible] would be the life [illegible] 500,000 km and might be [illegible] life of [illegible] years.

[illegible] cost of [illegible] consisted of [illegible]. It varies with the distance to be covered, [illegible] and regularity of shipments, the possibil- [illegible] of transporting materials on the way back, etc. In ad- [illegible] differences of [illegible] not required to [illegible] of special or normal equipment in case [illegible] analytical purposes, the [illegible] per [illegible] can be expressed as follows:

Distance	Normal truck	NCr$ / t-km
[illegible]	12.5	[illegible]
[illegible]	20.2	[illegible]
[illegible]	28.0	11.7
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible] the case of having truck services on a rental basis or [illegible] contract, some points, especially since the overall operat[illegible] of [illegible] would be taken care of by an outside party [illegible] farm. The fact, however, of depending entirely on third party [illegible] for transportation would certainly constitute a weak link in the integrated structure of the operation.

As far as rates are concerned, [illegible] are rather high, [illegible] recently [illegible] has [illegible] several [illegible] from [illegible] to Asab (about 600 kg) paying 40 ¢ per head (i.e. some 0.07 $/ head per km). However this price was applied in the context of , huge transportation contracts between MAESCO and truck hiring services for banana transportation. Probably the cost would be higher for normal shipments.

A combination of farm's trucks and hired trucks seems more advisable, especially on a short-term basis. If a more suitable combination could be found, there should not be much difference between transportation cost (inclusive of depreciation, maintenance, etc..) with the farm's own trucks and the tariffs to be paid for hired services.

2.2.2. Transportation from Ethiopia to the export markets

There are two possible solutions, both valid according to the distance from the market and the quality of beef.

Sea transportation - because of the closing of the Suez Canal, in recent years an additional charge to the freight rates of about 35 % has been added. Naturally, this surcharge will be abolished with the re-opening of the canal.
Sea transportation presents the problem of the available refrigerated space, and the limited number of ports of call. However, there is no question about the economic advantage of merchant ships compared to air cargo, whenever these are available At the time of the survey, we considered the possibility of utilizing refrigerated containers. According to our contacts, however, this system finds a weak point in the port facilities that do not have cranes powerful enough to lift the containers. Furthermore, the Ethiopian customs require a thorough inspection of the goods, for which actual unloading of the containers would become necessary.
During the month of March 1973, the following freight rates in US dollars were applicable in the case of shipments from from Ethiopia of frozen meat in cartons: from Asab to Suez-Akaba 34 $/ton; to Jeddah 40 $/t; to the Persian Gulf ports 50-55 $/t; to the Mediterranean ports 85-95 $/ton. In the case of canned meat the freight rate was 32 - 35 $/ton when exported to the Mediterranean ports and 10.25 when exported to Jeddah - Akaba.

Air cargo - Fast delivery, with practically no limits in the number of markets of destination, makes the use of airplanes appealing in the case of exports. Unfortunately the freight rates are still rather high, but with the arrival in operation of the new DC 10, several DC 8 will be made available also for air cargo. This is, for example, the case of Alitalia, that has initiated a weekly air cargo service Rome - Addis - Lusaka - Nairobi - Tripoli - Rome. The DC 8 has a capacity of 32 tons, of which some 25 tons could be reserved to beef and the rest to more valuable commodities. According to our contacts, the freight rates to Rome - Athens would be in the vicinity of 300 Lit per kg or 1.2 Eth.$ per kg. The Ethiopian Airlines has one Boeing 707 that could be chartered for air cargo.The preparation and cleaning of the airplane would cost 10,000 Eth.$, that would be charged just for the first shipment and not for the immediate shipments that would follow. For this reason the possible utilization of a chartered airplane should comprise several shpments, one after the other.
During March 1973 the following freight rates were applicable in the case of chartered airplanes from the Ethiopian Air-lines (inclusive of 10,000 Eth.$ of preparation) (1):
Addis Ababa to Hong Kong 138,700 Eth.$, to Beirut 54,400 Eth $, to Kinshasa 71,900, to Rome 85,400 Eth.$.
Considering a transportation capacity of 30 tons, the cost of 1 kg of beef would be respectively 4.60 Eth.$ to Hong Kong, 1.81 Eth.$ to Beirut, 2.40 Eth $ to Kinshasa, 2.84 Eth.$ to Rome.
The fixed charge of 33 ¢/kg will drop progressively in the immediate following shipments.

2.3. Fences

Any rational scheme of livestock development must take into consideration an economic fencing of the pasture land. The role of appropriate fencing is emphasized in the case of a free disease zone, where the movement of the animals should be rigidly regulated. A good fence must not be over-built, but at the same time it must not require constant upkeep.

---

(1) From the time of our survey to date prices of air transportation have boosted of approx. 30%. According to our contacts an additional increase is expect shortly.

Fencing in the Southern Rangelands would have to tackle the problem of white ants. For this reason the posts should be either made of cement or white timber impregnated with an appropriate substance. At the time of our visit in Ethiopia both solutions were considered quite costly because cement prices were record high, due to an acute shortage. As for the facilities for impregnating wood, they exist only in Addis Ababa and therefore transportation would have a bearing on overall costs. Forthermore with the alternancy of dry and wet climate, often the soil cracks, and the posts might be loosened from the ground, and therefore a continuous inspection must be carried out.

Another problem that has to be taken into consideration is whether to choice should fall on barbed wire or smooth wire. Infact barbed wire, which is usually favoured because it is considered suitable to create very rigid fences may injure cattle causing damage to their skins, thus lowering the value of this important by-product.

Galvanized smooth wire often works better, because of its higher resistance to rust. In certain areas, in order to stop wild animals from digging into the soil, fences are installed deep into the ground; naturally their cost ismuch higher.

Estimate cost ofr a 100 cm high fence made up of 6 orizontal lines and vertical lines (spaced about 30 cm) ranges from about Eth. $ 950 up to Eth. $ 1,700 per kilometer. The price is inclusive of impregnated posts and installation costs. The possible exemption from import duty would eventually account for only 5% of the ultimate costs.

The possibility of using barbed wire coils to be anchored directly to the soil (thus avoiding the problems of higher costs for impregnated posts), was taken into consideration, and the overall cost of this type of fence on the spot was estimated at Eth. $ 150 per kilometer, plus 20-30%for the installation.

The life of a galvanized wire fence is normally expected at around 10 years, though routine control has to be made, because the stealing of pieces of wire by the local people may be frequent.

The possibility of growing agaves for fencing either to be used by themselves or together with the wood and wire fences was taken into consideration for some specific cases, as their spiny leaves could keep wild animals away. The basic idea is to plant them in 3 rows 3-4 meters wide; in a short time a vegetation would grow [illegible] authorities could have to tackle the pro- [illegible] the posts should be either non- [illegible] compensated with an appropriate al- [illegible] Ethiopia's both situations were [illegible] posts present some special diffi- [illegible] for the facilities for transportation [illegible] Addis and therefore transportation [illegible] cost. Further, with the climate [illegible] will recede, and the posts [illegible] and therefore a continuous [illegible]

[illegible] problem is whether [illegible] is not beyond [illegible] suitable [illegible] damage to [illegible] important to produce [illegible]

[illegible] private [illegible] into the [illegible]

[illegible] a 100 [illegible] [illegible] would overrun [illegible]

[illegible] being tackled [illegible] the [illegible] taken into consideration [illegible] on the spot was [illegible] the institution.

[illegible] wire fence is [illegible] control has to be [illegible] by the local people [illegible]

[illegible] of grazing against [illegible] together with the road and [illegible] for some specific causes, as [illegible] wild animals each. [illegible] metres wide) in a shorter time a [illegible] would [illegible]

thick enough to function as a fencing device. Cost of planting agave would be related to labor costs for planting and the propagation material to be used. For this purpose we would suggest the use of builbils with an indicative cost of 6 cents each, instead of suckers that, being rather voluminous, would be costly to be transported. Some acreage for the cultivation of the propagation material should be initiated in the proximity of Study Area. Others local vegetable essences should be considered at the time of the implementation of the project alternative to the proposed one.
Estimate overall cost, including the installation, for this type of fencing should approximate Eth. $ 200 per kilometer.

2.4. Living quarters and accomodations

In the Study Area accomodations and offices for the personnel have to be planned. According to our contacts prefabricated building would be certainly one possible solution to take into consideration.
Since the production plant is in Addis Ababa, additional costs for transportation and assembling have to be considered.
All in all, the eventual costs for prefabricated living quarters on site is estimated to be in the vicinity of 220 Eth.$ per square meter a,d 150 Eth.$ per sq.m in the case of offices and hangars.
The above-mentioned figures are not inclusive of external infrastructures such as electrical, plumbing, sanitary fixures and fittings, water installations and furniture.
These prices may be considered 10 to 30 % higher than those to be paid in Ethiopia for buildings constructed on site (not pre-fabricated) by local firms.
Since pre-fabricated houses are produced in Ethiopia, no restitution of customs duties is due in the case of importation from abroad.
The life of prefabricated houses is forecast potentially up to 100 years, naturally maintenance costs are generally higher when compared to brick houses, while the depreciation costs would be in line with the latter.

2.5. Road construction

The lack of local rural roads was a real problem for Ethiopia throughout the post-war period. In the past, the main effort was concentrated on the creation of an arterial road system, but as it reached completion, the need for local roads took on a greater significance and became more acute in recent years, when a number of agricultural development programs could not not be implemented without including the construction of roads in the investment package.

In 1961 the Imperial Ethiopian Government's Planning Commission Office stressed the importance and the need for local roads to complete the road network, and to make possible its full utilization. The 3rd FYDP recognized the failure of the two previous plans to make substantial contribution to the solution of this problem. The Planning Commission Office in recent years pointed out the lack of progress in developing a local road network and warned about the dangers and the bottlenecks that this was causing to the development of the country. In the recent past a report by the World Bank underlined the importance of this constraint on the economy. The different Development Projects (CADU, USAID, SIDA, ESBU; WADU, NCD) had to face this problem. However they did not follow a coordinated and integrated program and failed to establish precise connections with the overall national goals. (1)

It is almost impossible to compute a simple average cost of road construction. Climatic and soil conditions, topography, design standards and labour intensive or capital intensive execution methods vary greatly, resulting in evident variations in cost. As a guide we report hereunder the estimated costs incurred by some agencies in their activities:

Agency	Definition	Specification	Eth.$ cost/km Range	Eth.$ cost/km Average
IHA	Standard feeder	6 meter crushed stone surface, expensive pipes, culvert, bridged, max. gradient 6 - 10%, speeds 30 - 40 km in mountainous terrain	50,000/ 144,000	87,000
IHA	All-weather	Surface width 4-5.5 max gradient 10-12%, improvement of exist. tracks, capital intensive	15-25,000	-
P.O.C.	All weather	Speed 30-60 km/h, surface width 3.5-5.0 m, roadbed width 4.5-8 m, low quality design structures, capital intensive	12,500/ 24,000	20,500

(1) Local Rural Roads Program in Ethiopia, Vol II - Report on development of local rural roads, Addis Ababa, February 1973

Agency	Definition	Specification	Ethi.$ cost/km. RANGE	AVERAGE
LOCAL Autho-rities	Dry-weather service to traffic		6-12,00	—
USAID Tigre & Eritrea	Dry-weather	Low standard, low cost and labour intensive. Surface width 3.5-4.0 m. dirt or aggregate surfacing, drainage by diversion, etc.		750
SIDA Baku-Jere	All-weather	4 m wide surface of earth and gravel, drainage ditches, road bed of 6-8 m. width, road dips of stones and cement. Labour intensive		5,500
ESBU Road Dessie - Woreilu		6 m. wide, partly surfaced with local gravel, little drainage works		2,600
CADU	All-weather	6 m. wide highway, of which 3.5 m. have a base and gravel surfacing. Labour intensive	18,000/ 20,000	

Agency	Definition	Specification	Eth.$ cost/km.	
			RANGE	AVERAGE
WADU	All-weather (excluding truck traffic in the rainy season)	4m. high-crowned travel way, contour with about 10% length gravel surfaced, etc.		2,400
	farm tracks	3 m. wide		200 (without over head charge)
NATIONAL COMMUNITY DEVELOPMENT & Self Help Projects	Dry-weather	Low standard roads built by local population. Labour intensive	164-340 (overhead charge not included)	
	All-weather			21,360

Other local authorities have implemented labour intensive rural roads, the cost of which range from 1,500 to 7,000 Eth.$/km. Unfortunately the information about the standards are lacking.

Fro firebreaks there is the work carried out by the Yabello Pilot Project. An average of 107.5 Eth.$/km (without overhead costs) has been estimated for the construction and 34 Eth.$/km for the maintenance. The foreign exchange component (equipment, energy) was 80-90%, without considering overhead costs.

Maintenance costs are more difficult to obtain than construction costs. They vary according to climatic and soil conditions, availability of building material and methods used.

According to the the Imperial Highway Authority, routine maintenance costs for a gravel road is about 1,600 - 2,130 Eth.$/km per year, 2,800 Eth.$/km per year for a paved road. 500 Eth.$ for an earth road and 3,000 Eth.$ for an asphalt road.

According to a study carried out for I.H.A. by a consulting firm, the maintenance cost per km for a feeder road is 1,145 - 1,733 Eth.$ and for a service to traffic road 790 - 1,210 Eth.$.

By rough approximation, dry weather rural roads can be built at less than 5,000 Eth.$/km, tracks at 200 - 400 Eth.$ and all-weather roads at 12,000 - 20,000 Eth.$. Maintenance costs can be considered very low because of the low standards of construction and because of low traffic density.

3. MEAT AND BY-PRODUCTS MARKET

3.1. Domestic meat market

Livestock is a considerably large resource of Ethiopia, utilized only partially. The national cattle stock is one of the largest in the world and the most extensive in Africa. Sheep and goat stocks are also very extensive (see tables 6 and 7).
High production potential does not imply high meat consumption. The latter is quite low, though greater than that of other African countries. According to FAO (see table 8), the total meat consumption per capita amounts to 16.4 kg a year, two thirds of which is represented by beef, followed by mutton, lamb and poultry meat. Pig meat is consumed by very few people, mainly foreigners. Camel meat is consumed in the lowlands, where it is sometimes considered a delicacy. Game meat consumption is limited to some areas (see table 9). It has been estimated that only a minor part, may-be 30%, out of total meat consumption is in some way traded . Autoconsumption is the prevailing pattern.
The limitation of the domestic meat market is due to many factors, such as:

- Prevalence of rural population over urban population;
- Low income of both rural and urban populations;
- Seasonal demand, caused by religious feasts and the coffee-selling season. It is not by chance that the two main demand peaks are in January, at the end of the coffee harvesting season, and in March, before the Coptic Easter;
- Seasonal supply, due to pasture seasonal production and the impossibility of moving animals during the rainy seasons;
- Difficulty and costs of transportation; at the present time the transportation problem is solved by moving the animals on foot for long distances. This entails very serious losses of weight. It is estimated that on the trip from the Southern Rangelands to Addis Ababa the animals lose on average 30% of their weight;
- Producers have no incentive to sell animals. Prices paid to them are very low and the product market is inefficient;
- Consumer goods market is scarcely developed and poor.

The constraints on the expansion of meat consumption (and market) are ver many and substantial changes are not expected in the medium or short run. Some minor problems, as the transportation one, are going to be solved or at least reduced, but the major problems will be present for a long time to come.

According to FAO, private consumption expenditure (PCE), that is the income, is expected to expand, on the basis of the existing trends, 7.7 % till 1975 and 13.6 % till 1980, 1965 being equal to 100. This entails, in the period 1970-80, an expansion of meat demand per capita which ranges from 5 to 14 %, according to the type of meat. The higher expansion is expected for poultry meat, the lower for game meat.
To be optimistic and if we accept as realistic the development assumptions for Ethiopia made by the United Nations in the DD2 (second Development Decade) in 1970-80 the meat demand per capita will expand from 16 to 33 % according to the type of meat (see tables 10,11,12 and 13). In this case the total demand for meat will expand considerably (see table 13), associated with the population growth, which is expected to increase about 40% in the span of time between 1965 and 1980 (see table 11).

Meat demand is increasing, but at the moment it is impossible to forecast whether meat market will expand accordingly or only,or mainly, autoconsumption will. It is believed that the many projects currently under study or in process of implementation will affect noticeably the present autoconsumption - market balance. The export market, meanwhile, is expected to undergo substantial changes. Consequently the domestic market will be affected, but it is hard to say how and to what extent. Therefore, a sensible expansion of marketable production is possible and economically feasible only if export markets are taken into account. The domestic market will have perforce a marginal and complementary role and will absorb offals, by-products and non-exportable quality meats.

3.2. Export market

3.2.1. World foreign trade

The world trade of beef and live cattle has been gaining importance in recent years and we may expect that the role of international trade in the beef market will be even more important in the near future. As a matter of fact, a few countries rely already on imports for the bulk of their consumption, though the characteristics of the trade vary according to the type of available meat products and the health situation and meat inspection regulations of each country.

[illegible] (FAO), private consumption expenditure (PCE), that is [illegible] expected to expand, on the basis of the existing [illegible] 1975 and 12.5 % till 1985, 1962 being equal to [illegible]. In the period 1970-85, an expansion of meat [illegible] ranges from 5 to 11 %, according to the type [illegible] expansion is expected for poultry meat, the [illegible]

[illegible] if we accept as realistic the development [illegible] made by the United Nations in the ORE (se- [illegible]) in 1972-75 the meat demand per cap [illegible] 10 to 13 % according to the type of meat (see [illegible]). In this case the total demand for meat [illegible] (see Table 12), associated with the [illegible], which is expected to increase about 10% in the span [illegible] 1985 (see Table 11).

[illegible] increasing, but at the moment it is impossible to [illegible] other meat market will expand accordingly or not [illegible] consumption will. It is expected that the meat product [illegible] study on the process of development that will affect [illegible] the present meat consumption [illegible], the export [illegible], is expected to [illegible] changes [illegible] the domestic market will be affected, but it is hard [illegible] to what extent. Therefore, a sensible expansion of [illegible] production is possible and presumably feasible only if [illegible] are taken into account. The domestic market will have [illegible] marginal and complementary role to absorb offals [illegible] and non-exportable quality meat.

[illegible]

[illegible] foreign trade

The world trade of beef and live cattle has been gaining [illegible] in recent years and we may expect that the role of inter- national trade in the beef market will be even more important in the near future. As a matter of fact, a few countries rely already on imports for the bulk of their consumption, though the characteristics of the trade vary according to the type of available meat products and the market regulations and meat inspection regulations of each country.

Table 6 - Livestock in some countries of East Africa
(in millions of head)

Countries	Cattle	Sheep	Goats
Ethiopia	26.3	12.8	11.3
Kenya	8.5	3.7	4.0
Somalia	2.8	3.95	5.0
Sudan	13.6	13.2	10.1
Tanzania	13.3	2.8	4.45
Uganda	4.4		2.8

SOURCE: Production Yearbook, FAO, Rome 1971

Table 7 - Livestock and Meat Standard Units (1) and Meat Availability Per Capita in Some East African Countries - (1970)

Country	Inhabitants	N° of Cattle/inh.	N° of Sheep/inh.	N° of camels /inhab.	MSU/ inh.	Red meat (2) produced by national herd per inhab.
Ethiopia	25.3	1.04	0.95	0.007	0.281	14.05 (3)
Kenya	10.8	0.79	0.71	—	0.286	14.80
Somalia	2.8	1.00	3.20	1.071	0.629	31.45
Sudan	15.6	0.87	1.49	0.199	0.353	17.65
Tanzania	13.3	1.00	0.55	—	0.242	12.10
Uganda	8.5	0.52	0.33	—	0.169	8.45

(1) MSU - A livestock unit producing 50 kg. of meat per year on carcass basis.

(2) Beef and veal, mutton, lamb & goat meat, camel meat kg on carcass basis.

(3) Excluding offals and poultry.

SOURCE: Livestock and Meat Industries in Ethiopia, present and future - FAO, February 1973

Table 8 - Ethiopia, Food Balance Sheet - Average 1964-66
Consumption Per Livestock Products

		Total consumption ('000 tons)	PER CAPITA CONSUMPTION			
			kg/year (1)	g /day	calories/day Nº	proteins/day g
Cattle	meat	224	9.9	27.0	61	4.0
	offals	46	2.0	5.6	8	.9
Sheep	meat	42	1.8	5.0	12	.6
	offals	10	.4	1.3	2	.2
Goats	meat	45	2.0	5.4	7	.8
	offals	11	.5	1.2	2	.2
Pig	meat	1		.1		
Poultry		48	2.1	5.8	7	.7
Camels	meat	9	.4	1.1	2	.2
	offals	2	.1	.2	—	—
Game meat		5	.2	.6	1	.1
			19.4			

(1) Red meat: 14.1 kg; Poultry meat + offals + game: 5.3 kg

SOURCE: Agricultural Commodity Projections, 1970-80, FAO, Rome 1972

Table 9 - Ethipia, Repartition of yearly meat consumtion per capita

LIVESTOCK	kg/ per capita	per cent
Cattle	9.9	60.40
Sheep	1.8	11.00
Goat	2.0	12.10
Pigs	—	—
Poltry	2.1	12.80
Camel	.4	2.45
Game	.2	1.25
TOTAL	16.4 (1)	100.00

(1) Excluding offals

SOURCE : <u>Agricultural Commodity Projections, 1970-80,</u> FAO, Rome 1972

TABLE 10 - ETHIOPIA, MEAT DEMAND PROJECTIONS

Meat	Income elasticity	(F)	Trend factor (1) 1965-70	Trend factor (1) 1970-80	Per capita demand (kg/year) 1965	1970	1975 (T)	1980 (T)	1975 (H)	1980 (H)	Total demand (in '000 t) 1965	1970	1975 (T)	1980 (T)	1975 (H)	1980 (H)
Beef and veal	.7	1	-1.7	0	10.0	9.3	9.7	10.0	10.3	11.3	227	234	273	319	291	357
Mutton and lamb	.9	1	0	0	3.8	3.8	4.0	4.2	4.4	4.9	86	97	114	135	124	156
Pig meat	.9	1	0	0	0	0	0	0	.1	.1	1	1	1	2	1	2
Poultry meat	1	1	0	0	2.1	2.1	2.3	2.4	2.5	2.8	48	54	54	76	70	90
Others	.59	2	0	0	3.7	3.7	3.8	3.9	4.0	4.3	83	93	108	125	113	137

NOTE: F - Demand function used: 1 - double log; 2 - semilog

H - High expansion of PCE compatible with the economy along with the assumptions made by U.N. in occasion of the DD2 (2nd Development Decade)

T - Expansion of PCE along with the trends

(1) In the demand projections, income (and consequently private consumption expenditure) is assumed to be the major shifter of demand. The trend factor is an additional parameter introduced in the demand model, trying to take into account the likely impact on demand of structural changes such as changes in consumer preferences, urbanization, income distribution, marketing facilities, etc.

SOURCE: Agricultural commodity projections 1970-80 - FAO, Rome 1972

Table 11 - Ethiopia, Basic assumptions underlying meat demand projections

	1965	1970	1975	1980
Population (.000)	22,699	25,277	28,183	31,731
PCE (T)	100	101,1	107,7	113,6
PCE (H)	100	101,1	117,9	133,7

NOTE: (H) High expansion of PCE compatible with economy along with the assumptions made by U.N. in occasion of the DD2 (2nd development decade)

(T) Expansion of PCE along with the trends

SOURCE: Agricultural commodity projections, 1970-80 - FAO, Rome 1972

Table 12 - Ethiopia, Indices of meat demand projections per capita (1965 = 100) (1)
(kg per year)

	1970/65	1975/70T	1980/75T	1980/70T	1975/70H	1980/75H	1980/70H
Beef and veal	92.6	104.5	103.8	108.5	111.4	108.2	121.6
Mutton and lamb	101.0	105.8	104.9	111.0	114.9	112.0	128.6
Pig meat	101.0	105.8	104.9	111.0	114.9	112.0	128.6
Poultry meat	101.1	106.5	105.5	112.3	116.9	113.4	132.9
Others	100.6	103.7	103.1	106.9	109.2	107.2	117.0

NOTE: (1) For basic assumptions see table 11.

SOURCE: Agricultural Commodity Projections 1970-80, FAO, Rome 1972

Table 13 - Ethiopia, Indices of population, income and meat demand

	1965	1970	1975T	1980T	1975H	1980H
Population	100	111.35	124.15	139.79	124.15	139.79
PCE per capita	100	101.1	107.70	113.60	117.90	133.70
TOTAL DEMAND						
Beef and veal	100	103.18	120.26	140.52	128.19	157.26
Mutton and lamb	100	112.79	132.55	156.97	144.18	181.39
Pig meat	---	---	---	---	---	---
Poultry meat	100	112.50	133.33	158.33	145.83	18. 50
Others	100	112.04	130.12	150.60	136.14	165.06

SOURCE: Agricultural Commodity Projections, 1970-80, FAO- Rome, 1972

Foreign trade in live cattle

The world trade in live cattle is certainly less important than that of meats. During the sixties, however, a few countries, like Italy, have become specialized in feedlot operations and have begun to purchase large quantities of feeder calves from abroad. There is some reluctance among producing countries in supplying unlimited quantities of feeder cattle, in consideration of the fact that in doing so an assumedly lesser quantity of finished products (i.e. meat) will be exported. While there is some truth in this opinion, the trend in modern technology seems to focus on calf operations based on grasses and pasture, while cattle finishing operations should be based mainly on cereals and concentrated feeds. Clearly enough, certain areas would specialize in calf production while others would develop feedlots and/or finish - ing ranches. This tendency has a sound economic basis. We are aware of the fact that the feedlots are very important in the USA and also in Italy, while a few successful examples have been started in Greece, Korea, Japan, etc. Lack of supply of calves, with the establishment of export quotas (e.g. Mexico to USA), has hindered a further expansion of the trend outlined above.
While nowadays cattle could be transported, technically and also economically, to far distant countries, live cattle for export is generally sold to neighbouring countries, often as a result of simple cross-border transactions. This would be the case, for example, of most exports of live cattle from Ethiopia to Affars and Issa. The amount of this trade is reported by the Central Statistical Office, while we feel that also fairly important quantities of live cattle are presently exported to Kenya, though there is no mention of them in the statistical publications.
We purposely consider the trade opportunities of feeder cattle and pass over the world trade live animals for reproduction, because the importance of this last sector would be irrilevant in the frame of the present Ethiopian situation. Presently, the Ethiopian exports of live animals are almost exclusively for slaughtering purposes in the country of importation.
It is worthwhile to mention and emphasize the importance of feeder cattle, because prices are and will be appealing.
In the long run, with the establishment of a free disease zone, a program of breeding and crossing of F1 feeder calves for exportation (by air) may be envisaged (see tables 14 and 15).

[illegible] in live cattle

[illegible] trade in live cattle is certainly less important [illegible] of meat. During the sixties, however, a few countries, [illegible] Italy, have become specialized in [illegible] have begun to purchase large quantities [illegible] abroad. There is some [illegible] of producing [illegible] supplying sufficient quantities of [illegible] of the fact that in doing so an [illegible] of finished products (i.e. meat) [illegible] there is some truth in this opinion, the trend [illegible] seems to focus on calf [illegible] and pastures, while [illegible] finishing operations [illegible] mainly on cereals and [illegible] certain areas will specialize in calf [illegible] others could develop feedlots [illegible] tendency has a sound economic [illegible] the fact that the feedlots are very [illegible] and also in Italy, while a few [illegible] been started in Greece, [illegible] with the establishment of [illegible] USA), has hindered a further [illegible] above.

[illegible] cattle could be transported, [illegible] to far distant countries, [illegible] generally sold to neighbouring countries [illegible] single crop-border transactions [illegible] example, of most exports of [illegible] cattle [illegible] Affairs and [illegible]. The amount of this [illegible] the Central Statistical Office, while [illegible] important quantities of live cattle [illegible] there is no mention of [illegible] publications.

[illegible] consider the trade opportunities [illegible] over the world trade in live cattle [illegible] because the importance of this [illegible] the frame of the [illegible] the Ethiopian exports of live [illegible] slaughtering purposes [illegible]

[illegible] considerable quantities [illegible] the importance of [illegible] cattle, because [illegible] are sold [illegible] with [illegible] prevailing [illegible] presence of [illegible] exportation [illegible]

Table 14 - 1971, export of live cattle from selected countries ('000 head of cattle)

Country	Total	Calves	Breeding cattle
Netherlands	78.8	68.6	9.3
New Zeland	2.3	-	2.3
Poland	291.1	39.5	-
Portugal	0.2	-	n.a.
Senegal	2.4	-	0.4
Sweden	0.5	-	0.5
Switzerland	8.2	-	8.2
Tunisia	0.2	-	-
United Kingdom	123.5	27.3	-
United States	93.0	n.a.	33.0
Yugoslavia	126.1	-	0.7
Belgium	103.5	77.1	0.3
Botswana	0.5	n.a.	n.a.
Cameroon	6.1	n.a.	n.a.
Canada	245.1	142.3	37.8
Argentina	58.0	-	11.1
Colombia	95.0	n.a.	n.a.
Denmark	82.0	-	11.0
Germany, Fed. Rep.	607.0	486.0	14.0
Ireland	615.9	1.6	4.5

Source: Elaborated from the Monthly Bulletin of Agricultural Economics and Statistics, F.A.O. 1971.

n.a.: not available.

Table 15 - 1971, importation of live cattle in selected countries ('000 head of cattle)

Country	Total	Calves	Breeding cattle
Portugal	1.5	0.1	-
Senegal	13.3	n.a.	n.a.
Switzerland	12.7	2.9	-
Tunisia	8.3	0.1	-
United Kingdom	619.6	n.a.	-
United States	991.0	159.0	22.0
Venezuela	0.8	-	-
Yugoslavia	2.6	-	0.1
Ghana	60.7	-	-
Belgium	111.3	51.3	1.3
Botswana	0.4	-	0.4
Cameroon	30.8	n.a.	n.a.
Canada	90.7	n.a.	6.3
Germany, Fed. Rep.	162.0	60.0	-
Greece	52.2	44.5	7.7
Ireland	93.2	13.2	2.0
Italy	2,333.0	1,076.0	70.0
Japan	7.0	n.a.	n.a.
Mauritius	n.a.	n.a.	n.a.
New Zeland	0.2	-	-
Poland	0.1	-	0.1
Netherlands	84.3	60.2	0.1

Source: Elaborated from the <u>Monthly Bulletin of Agricultural Economics and Statistics</u>, F.A.O. 1971

Foreign trade in beef

As it is well-known, livestock health regulations limit the potential trade of meat produced in several countries. However, the ever increasing consumer demand has boosted the world market for beef at an annual rate of increase of 5.5 % in quantity. Presently international meat trade accounts for about 6% of the world supply. The need for finding new sources of supply has urged the international operators to explore the potential of countries that until recently were considered just marginal. In order to have a clear understanding of the situation, we indicate the main types of meat products available in the international market:

- fresh or chilled meat is generally the most expensive, but it has limited circulation; generally is sold to nieghbouring or close countries, where transportation is not a problem. As a rule it has to be sold in 3-4 weeks time.
- frozen beef is generally subdivided into:"quick frozen beef" (surgelato) often in relative small quality pieces, but on the whole of lesser economic importance;and into "frozen beef", often in carcass that has undergone a slow freezing process.
- preserved beef is a wide category; for the purpose of this study, we may list "corned beef", "canned beef" and "frozen cooked beef". On the whole we may say that the exports of preserved beef from developing countries have not been really rewarding, possibly due to some suspected over-exploitation by some processors. However preserved beef is usually capable of complying with the health regulations of most importing countries, because of the sterilization process it has undergone. The importance of preserved beef may well increase in the future, in line with the foreseen tight supply of beef.

The overall situation can be readily visualized by the tables 16 and 17.

3.2.2. World supply and demand of beef

For the purpose of this report we utilize the comprehensive survey published in 1972 by FAO, where the world demand of beef in 1980 is forecast at 53,364,000 tons, as compared with 39,720,000 tons of beef in 1970 (see table 18).

[illegible] in beef

[illegible] known, livestock health regulations limit the [illegible] of meat produced in several countries. However increasing consumer demand has created [illegible] beef at an annual rate of increase of [illegible] presently interested meat trade accounts [illegible] of the world supply. The need for [illegible] supply has urged the international operators to [illegible] potential of countries that until recently were [illegible] marginal, in order to have a [illegible] situation, we indicate the main types of [illegible] available in the international market.

[illegible] chilled meat is generally the most expensive, [illegible] circulation generally [illegible] countries, where transportation [illegible] it has to be sold in [illegible]

[illegible] is generally [illegible] often in relative small quantity [illegible] lesser economic importance [illegible] often in carcass that has [illegible]

[illegible] meat is a wide category; for the purpose of [illegible] we may list "corned beef", [illegible] beef". On the whole we can say that [illegible] beef from developing countries have not been [illegible], mainly due to [illegible] by some processors. [illegible] of complying with the health [illegible] importing countries, because of the [illegible] in the [illegible], the importance of [illegible] increase in the future, in line [illegible] of beef.

[illegible] situation can be [illegible] 17.

[illegible] and demand of beef

For the purpose of this report [illegible] published in 1971 by FAO, where the world demand [illegible] in 1980 is forecast at [illegible] compared [illegible] tons of beef in [illegible]

Table 16 - 1971, imports of chilled or frozen beef in selected countries
('000 tons)

Country	Total	Bone-in		Bone-out	
		chilled	frozen	chilled	frozen
Netherlands	48.3	16.4	3.0	1.7	27.2
Poland	2.9	n.a.	n.a.	n.a.	n.a.
Portugal	22.5	22.5	22.5	-	-
Sweden	7.3	1.7	-	1.0	4.6
Switzerland	31.8	n.a.	n.a.	n.a.	n.a.
Tunisia	0.3	n.a.	n.a.	n.a.	n.a.
United Kingdom	252.8	117.4	5.0	130.4	130.4
United States	499.0	7.0	3.0	480.0	480.0
Yugoslavia	0.3	0.3	-	-	-
Belgium	21.7	9.6	9.6	12.1	12.1
Cameroon	0.8	n.a.	n.a.	n.a.	n.a.
Canada	79.1	5.1	5.1	58.5	58.5
Cyprus	1.4	n.a.	n.a.	n.a.	n.a.
Costa Rica	0.4	n.a.	n.a.	n.a.	n.a.
Germany, Fed.Rep.	179.0	121.0	20.0	3.0	35.0
Greece	46.9	10.3	10.6	-	26.0
Ireland	0.4	n.a.	n.a.	n.a.	n.a.
Italy	317.0	244.0	27.7	0.6	44.7
Israel	42.2	-	42.2	-	-
Japan	52.0	-	-	52.0	52.0

SOURCE : Monthly Bulleting of Agricultural Economics and Statistics
FAO, Rome 1971

Table 17 - 1971, exports of chilled or frozen beef from selected countries ('000 tons)

Country	Total	Bone-in		Bone-out	
		chilled	frozen	chilled	frozen
Argentina	470.2	43.5	56.8	35.3	168.3
Australia	395.6	-	31.7	7.7	356.2
Belgium	23.4	19.7	19.7	3.7	3.7
Botswana	25.5	12.6	-	-	12.9
Cameroon	1.6	1.6	1.6	-	-
Canada	50.7	10.3	10.3	38.0	38.0
Colombia	18.4	n.a.	n.a.	n.a.	n.a.
Denmark	79.0	66.0	13.0	-	-
Germany Fed.Rep.	55.0	46.0	4.0	-	5.0
Ireland	148.1	n.a.	n.a.	n.a.	n.a.
Netherlands	113.5	107.9	0.4	2.6	2.6
New Zeland	177.4	-	11.5	-	165.9
Poland	18.6	n.a.	n.a.	n.a.	n.a.
Sweden	16.1	5.1	2.8	1.1	7.1
Switzeland	0.4	-	0.4	0.4	-
United Kingdom	13.6	7.7	2.7	3.3	3.3
United States	14.0	n.a.	n.a.	n.a.	n.a.
Yugoslavia	51.1	51.1	-	-	-
Finland	12.5	-	12.5	-	-

SOURCE : Monthly Bulletin of Agricultural Economics and Statistics, FAO, Rome 1971

Table 18 - Beef and Veal: Production, Consumption and Balances, 1964-66 Average, 1970+ and Projections for 1980.

	1964 - 66 Average				1970+				1980 Projections			
	Production	Net Trade (-)exports	Consumption Total	Consumption Per cap.	Production	Net Trade (-)exports	Consumption Total	Consumption Per cap.	Production	Net Trade (-)exports	Consumption Total	Consumption Per cap.
	(. . . Thousand Tons	. . . .)		(. Kg .)	(. . . Thousand Tons	. . . .)		(. Kg .)	(. . . Thousand Tons	. . . .)		(. Kg .)
WORLD	33,000	- 247	32,753	9.7	39,970	- 250	39,720	10.7	51,711	1,653	53,364	11.7
ECONOMIC CLASS I	17,517	783	18,300	26.5	20,370	887	21,257	29.2	25,214	2,307	27,521	34.2
North America	9,730	537	10,267	47.9	11,244	650	11,894	52.5	14,093	1,198	15,291	60.3
Canada	890	- 88	802	40.9	975	- 60	915	42.7	1,258	35	1,293	52.0
United States	8,840	625	9,465	48.6	10,269	710	10,979	53.5	12,835	1,163	13,998	61.2
Western Europe	5,835	689	6,524	19.0	6,850	687	7,537	21.2	8,199	1,522	9,721	25.4
EEC	3,410	560	3,970	21.8	4,045	575	4,620	24.5	4,830	1,160	5,990	29.5
Belgium-Luxembourg	207	16	223	22.8	250	25	275	27.3	247	93	340	32.2
France	1,436	- 52	1,384	28.4	1,603	- 80	1,523	30.0	2,045	- 120	1,925	35.0
Germany, Fed. Rep.	1,033	236	1,269	22.3	1,258	170	1,428	23.4	1,458	340	1,798	27.7
Italy	495	373	868	16.8	597	510	1,107	20.7	730	837	1,567	27.0
Netherlands	239	- 13	226	18.4	377	- 50	287	22.0	350	10	360	24.8
Other Western Europe	2,425	129	2,554	15.9	2,805	112	2,917	17.4	3,369	362	3,731	20.7
Austria	161	- 17	144	19.7	184	- 40	144	19.5	205	- 35	170	21.8
Denmark	232	- 163	69	14.4	220	- 145	75	15.2	172	- 82	90	17.1
Finland	92	3	95	20.7	120	4	124	26.2	108	49	157	31.7
Greece	61	38	99	11.5	76	60	136	15.1	120	70	190	19.9
Ireland	286	- 236	50	17.2	339	- 290	49	16.7	427	- 369	58	18.6
Norway	57	- 1	56	15.1	60	- 1	59	15.2	52	18	70	16.5
Portugal	57	10	67	7.3	75	15	90	9.4	88	62	150	15.4
Spain	200	64	264	8.4	300	110	410	12.4	373	324	697	19.1
Sweden	158	- 5	153	19.9	174	- 15	159	19.8	130	50	180	21.1
Switzerland	107	27	134	22.7	130	40	170	27.0	165	45	210	29.7
United Kingdom	808	496	1,304	24.0	830	480	1,310	23.4	1,132	330	1,462	24.6
Yugoslavia	202	- 92	110	5.6	290	- 110	180	8.4	388	- 101	287	12.5
Oceania	1,238	- 456	782	55.8	1,450	- 490	960	62.6	1,941	- 727	1,214	64.3
Australia	951	- 334	617	54.2	1,080	- 320	760	60.9	1,432	- 453	979	64.0
New Zealand	287	- 122	165	62.8	370	- 170	200	70.0	509	- 274	235	68.5
Others	714	13	727	6.0	826	40	866	6.7	981	314	1,295	8.7
Israel	17	30	47	18.3	20	40	60	20.8	31	64	95	26.1
Japan	196	10	206	2.1	260	25	285	2.7	290	166	456	3.9

Source: Agricultural Commodity Projections, 1970-80 - FAO, Rome, 1972.

... Production, Consumption and Balances, 1964-66 Average, 1970+ and Projections for 1980.

	1964 -66 Average				1970+				1980 Projections			
	Production	Net Trade (-)exports	Consumption Total	Consumption Per cap.	Production	Net Trade (-)exports	Consumption Total	Consumption Per cap.	Production	Net Trade (-)exports	Consumption Total	Consumption Per cap.
	(. . . Thousand Tons	. . . .	. . . .)	(. Kg .)	(. . . Thousand Tons	. . . .	. . . .)	(. Kg .)	(. . . Thousand Tons	. . . .	. . . .)	(. Kg .)
ECONOMIC CLASS II	8,856	- 878	7,978	5.2	10,690	- 1,044	9,646	5.5	15,301	- 1,762	13,539	5.9
Africa	1,399	- 72	1,327	5.3	1,605	- 88	1,517	5.4	2,411	- 145	2,266	6.1
Northwestern Africa	102	8	110	3.7	133	2	135	3.9	198	- 2	196	4.3
Western Africa	341	6	347	3.5	396	- 9	387	3.4	620	- 24	596	3.9
Central Africa	132	- 21	111	3.4	150	- 25	125	3.5	200	- 20	180	4.1
Eastern Africa	824	- 65	759	8.7	920	- 56	870	8.9	1,393	- 99	1,294	10.2
Latin America	5,626	- 835	4,791	19.5	7,000	- 1,010	5,990	21.1	9,805	- 1,865	7,940	21.2
Central America	599	- 160	439	7.7	738	- 192	547	8.1	1,220	- 335	885	9.4
Mexico	419	- 112	307	7.2	508	- 113	395	7.8	852	- 207	645	9.0
Caribbean	235	20	255	12.1	280	23	303	12.9	361	46	407	13.9
South America	4,792	- 695	4,097	24.7	5,982	- 841	5,141	26.9	8,224	- 1,576	6,648	26.6
Argentina	3,112	- 577	1,535	68.1	2,800	- 650	2,150	88.4	3,505	- 1,346	2,159	77.6
Brazil	1,452	- 39	1,413	17.5	1,720	- 70	1,650	17.6	2,752	- 190	2,562	20.6
Paraguay	100	- 36	64	31.5	117	- 41	76	32.0	164	- 56	108	36.6
Uruguay	311	- 95	216	79.6	370	- 120	250	86.6	458	- 172	286	88.1
Near East	716	16	732	5.0	825	34	859	5.1	1,227	109	1,336	6.1
Near East in Africa	322	11	333	7.5	339	25	364	7.1	506	31	537	7.9
Near East in Asia	394	5	399	4.0	486	9	495	4.3	721	78	799	5.2
Asia and Far East	1,115	13	1,128	1.3	1,260	20	1,280	1.3	1,858	139	1,997	1.5
South Asia	469	1	470	0.8	519	-	518	0.7	803	- 1	802	0.9
East and Southeast Asia	646	12	658	2.4	742	20	762	2.4	1,055	140	1,195	2.9
ECONOMIC CLASS III	6,627	- 152	6,475	5.7	8,910	- 93	8,817	7.2	11,196	1,108	12,304	8.4
Asian centrally planned economies	2,007	- 153	1,854	2.3	2,323	- 76	2,246	2.5	2,884	433	3,317	3.1
China (Mainland)	1,895	- 134	1,761	2.3	2,192	- 60	2,130	2.5	2,712	427	3,139	3.0
U.S.S.R. and Eastern Europe	4,620	1	4,621	13.9	6,587	- 17	6,570	18.9	8,312	673	8,987	23.4
U.S.S.R.	3,271	83	3,354	14.5	4,800	115	4,915	20.3	5,980	785	5,765	25.1
Eastern Europe	1,349	- 82	1,267	12.4	1,787	- 132	1,655	15.6	2,332	- 110	2,222	19.3
Bulgaria	90	- 9	81	9.9	115	- 6	109	12.8	162	- 8	154	17.0
Czechoslovakia	264	2	266	18.8	370	-	370	24.9	418	41	459	30.0
German Dem. Rep.	244	43	287	16.9	325	35	360	21.0	441	- 12	429	24.5
Hungary	135	- 40	95	9.4	191	- 75	116	10.2	222	- 70	152	14.1
Poland	421	- 63	358	11.4	540	- 70	470	14.3	732	- 62	670	18.7
Romania	181	- 15	166	8.7	230	- 20	210	10.3	334	- 6	326	13.7

Note: Production data are in terms of carcass weight excluding offals and slaughter fats. Trade data represent the estimated carcass weight equivalent of meat (fresh, chilled, frozen, prepared and canned) and of live animals.

Table 18 (Continued) - Beef and Veal: Production, Consumption and Balances, 1964-66 Average, 1970* and Projections for 1980.

	1964 -66 Average				1970*				1980 Projections			
	Production	Net Trade (-)exports	Consumption Total	Consumption Per cap.	Production	Net Trade (-)exports	Consumption Total	Consumption Per cap.	Production	Net Trade (-)exports	Consumption Total	Consumption Per cap.
	(. . . Thousand Tons	. . . .	. . . .)	(. Kg .)	(. . . Thousand Tons	. . . .	. . . .)	(. Kg .)	(. . . Thousand Tons	. . . .	. . . .)	(. Kg .)
ECONOMIC CLASS II	8,856	- 878	7,978	5.2	10,690	- 1,044	9,646	5.5	15,301	- 1,762	13,539	5.9
Africa	1,399	- 72	1,327	5.3	1,605	- 88	1,517	5.4	2,411	- 145	2,266	6.1
Northwestern Africa	102	8	110	3.7	133	2	135	3.9	198	- 2	196	4.3
Western Africa	341	6	347	3.5	396	- 9	387	3.4	620	- 24	596	3.9
Central Africa	132	- 21	111	3.4	150	- 25	125	3.5	200	- 20	180	4.1
Eastern Africa	824	- 65	759	8.7	920	- 56	870	8.9	1,393	- 99	1,294	10.2
Latin America	5,626	- 835	4,791	19.5	7,000	- 1,010	5,990	21.1	9,805	- 1,865	7,940	21.2
Central America	599	- 160	439	7.7	738	- 192	547	8.1	1,220	- 335	885	9.4
Mexico	419	- 112	307	7.2	508	- 113	395	7.8	852	- 207	645	9.0
Caribbean	235	20	255	12.1	280	23	303	12.9	361	46	407	13.9
South America	4,792	- 695	4,097	24.7	5,982	- 841	5,141	26.9	8,224	- 1,576	6,648	26.6
Argentina	3,112	- 577	1,535	68.1	2,800	- 650	2,150	88.4	3,505	- 1,346	2,159	77.6
Brazil	1,452	- 39	1,413	17.5	1,720	- 70	1,650	17.6	2,752	- 190	2,562	20.6
Paraguay	100	- 36	64	31.5	117	- 41	76	32.0	164	- 56	108	36.6
Uruguay	311	- 95	216	79.6	370	- 120	250	86.6	458	- 172	286	88.1
Near East	716	16	732	5.0	825	34	859	5.1	1,227	109	1,336	6.1
Near East in Africa	322	11	333	7.5	339	25	364	7.1	506	31	537	7.9
Near East in Asia	394	5	399	4.0	486	9	495	4.3	721	78	799	5.2
Asia and Far East	1,115	13	1,128	1.3	1,260	20	1,280	1.3	1,858	139	1,997	1.5
South Asia	469	1	470	0.8	519	-	518	0.7	803	- 1	802	0.9
East and Southeast Asia	646	12	658	2.4	742	20	762	2.4	1,055	140	1,195	2.9
ECONOMIC CLASS III	6,627	- 152	6,475	5.7	8,910	- 93	8,817	7.2	11,196	1,108	12,304	8.4
Asian centrally planned economies	2,007	- 153	1,854	2.3	2,323	- 76	2,246	2.5	2,884	433	3,317	3.1
China (Mainland)	1,895	- 134	1,761	2.3	2,192	- 60	2,130	2.5	2,712	427	3,139	3.0
U.S.S.R. and Eastern Europe	4,620	1	4,621	13.9	6,587	- 17	6,570	18.9	8,312	673	8,987	23.4
U.S.S.R.	3,271	83	3,354	14.5	4,800	115	4,915	20.3	5,980	785	5,765	25.1
Eastern Europe	1,349	- 82	1,267	12.4	1,787	- 132	1,655	15.6	2,332	- 110	2,222	19.3
Bulgaria	90	- 9	81	9.9	115	- 6	109	12.8	162	- 8	154	17.0
Czechoslovakia	264	2	266	18.8	370	-	370	24.9	418	41	459	30.0
German Dem. Rep.	244	43	287	16.9	325	35	360	21.0	441	- 12	429	21.5
Hungary	135	- 40	95	9.4	191	- 75	116	10.2	222	- 70	152	14.1
Poland	421	- 63	358	11.4	540	- 70	470	14.3	732	- 62	670	18.7
Romania	181	- 15	166	8.7	230	- 20	210	10.3	334	- 6	328	13.7

Note: Production data are in terms of carcass weight excluding offals and slaughter fats. Trade data represent the estimated carcass weight equivalent of meat (fresh, chilled, frozen, prepared and canned) and of live animals.

Table 19 - Beef and veal production in selected countries
Average 1963-67, Annual 1968 and 1971
(in millions of pounds)

Region and country	Average 1963-67	1968	1971
NORTH AMERICA:			
Canada	1,792.4	1,990.1	1,929.1
Costa Rica	62.4	76.0	103.1
Dominican Rep.	55.2	66.3	72.1
El Salvador	46.6	45.3	44.8
Guatemala	98.0	125.5	140.6
Honduras	44.4	57.3	83.7
Mexico	1,090.4	1,031.5	1,344.4
Nicaragua	81.2	105.5	139.8
Panama	60.4	68.9	85.0
United States	19,649.6	21,614.0	22,450.0
TOTAL NORTH AMERICA	22,980.8	25,180.3	26,392.6
SOUTH AMERICA:			
Argentina	5,054.0	5,646.7	4,446.7
Brazil	3,198.0	3,735.6	4,023.4
Chile	325.6	379.5	335.3
Colombia	819.8	793.1	1,063.3
Ecuador	87.2	90.4	104.2
Paraguay	257.0	260.9	238.1
Peru	208.2	198.4	179.9
Uraguay	675.4	638.8	595.0
Venezuela	366.2	406.3	464.0
TOTAL SOUTH AMERICA	10,991.4	12,149.7	11,449.9
EUROPE:			
Western:			
EDC -			
Belgium-Luxembourg	504.8	544.5	615.1
Danmanrk	398.8	456.6	429.5
France	3,219.2	3,580.3	3,527.4
Germany, West	2,598.4	2,735.9	3,033.6
Ireland	314.8	425.4	520.4
Italy	1,398.0	1,727.8	1,791.9
Netherlands	605.6	627.7	709.4
United Kingdom	1,958.0	1,996.8	2,095.8
Total EEC	10,997.6	12,094.9	12,723.0

./.

SOURCE: USDA, FAS, Washington D.C. Foreign Agriculture Circular, Livestock and meat, 1972

Table 19 (continued) - Beef and veal production in selected countries
Average 1963-67, Annual 1968 and 1971
(in millions of pounds)

Region and country	Average 1963-67	1968	1971
Western Europe (continued)			
Austria	316.0	347.0	353.6
Finland	201.8	195.1	—
Greece	135.6	177.8	193.9
Norway	122.8	117.7	123.4
Portugal	113.6	129.0	168.3
Spain	435.6	531.3	714.5
Sweden	356.4	345.2	322.8
Switzerland	252.4	282.9	296.1
TOTAL WESTERN EUROPE	12,931.8	14,221.0	15,135.9
Eastern:			
Bulgaria	183.2	237.5	—
Czechoslovakia	513.8	649.7	638.6
Germany, East	502.4	617.9	646.7
Hungary	227.4	268.6	264.8
Poland	966.4	1,170.0	1,174.6
Yugoslavia	551.2	692.7	656.0
TOTAL EASTERN EUROPE	2,944.6	3,636.6	3,573.4
TOTAL EUROPE	15,876.4	17,857.5	18,709.3
U.S.S.R.	8,478.0	11,303.3	11,276.6
AFRICA :			
Angola	25.0	30.7	45.5
Chad	20.2	25.2	--
Ethiopia	502.4	546.1	614.6
Kenya	58.8	64.5	—
Malagasy Rep.	246.4	255.7	257.9
Morocco	76.2	112.2	145.2
South Africa	1,024.4	880.2	1,111.1
TOTAL AFRICA	1,953.4	1,914.7	2,278.1

./..

Table 19 (continued - 2) - Beef and veal production in selected countries
Average 1963-67 Annual 1968 and 1971
(in millions of pounds)

Region and country	Average 1963-67	1968	1971
ASIA			
Philippines	178.2	165.9	172.2
China (Taiwan)	15.2	19.6	16.7
Iran	91.6	94.2	111.7
Israel	36.2	41.0	42.3
Japan	405.8	353.2	606.4
Korea, Rep of	102.6	81.0	105.5
Turkey	332.8	363.8	364.0
TOTAL ASIA:	1,162.4	1,118.7	1,418.9
OCEANIA:			
Australia	2,108.2	1,992.7	2,308.8
New Zealand	643.2	738.8	878.1
TOTAL OCEANIA	2,751.4	2,731.5	3,186.9

In this respect it is worth mentioning the huge deficit that is forecast for 1980 in centrally planned countries. The USSR's beef deficit in 1980 is forecast at 785,000 tons compared with 115,000 tons in 1970. In the same period Mainland China could move from an export situation of 60,000 tons in 1970 to an import situation of 427,000 tons in 1980.
On the other hand Western Europe would remainthe largest market with a beef deficit in 1980 of 1,522,000 tons agaist 687,000 tons in 1970. In Europe the largest market would be within the EEC (of the Six), especially Italy and West Germany. On the whole the importations in 1980 are forecast at 1,160,000 tons against 375,000 tons in 1970.
On the other hand an improvement is expected in the supply situation of U.K., while Spain would become a net importer of 324,000 tons, agaist 110,000 in 1970. A relatively new market is Japan, that will probably need 166,000 tons in 1980.

On the production side, a remarkable increase in the exportable surplus of beef is forecast for 1980: in Argentina, with 1,346,000 tons (vs. 650,000 tons in 1970); Brazil and New Zealand, with 727,000 tons (vs. 490,000 tons in 1970). Incidentally, in the mentioned study, the exports from African countries are forecast at 145,000 tons from 88,000 tons in 1970.

3.2.3. The market of beef in international trade

Notwithstanding the rather vigorous increase of the world beef trade in the sixties, prevailing quotations in most markets were not affected by speculation and supply and demand were fairly well balanced. The value per unit of meat has been increasing quite gradually and only in the second half of 1972 prices have skyrocketed and remained high since then. It was in this period that most countries (EEC, UK, USA, etc.) took a series of measures to ease imports and to find new sources of supply.
Clearly enough the beef market has now become a seller's market, that can almost dictated prices and terms of contract. The realization of a world shortage of beef and the high price level had a beneficial effect on some areas that were considered marginal for economically viable beef operations.

... is worth mentioning the huge deficit that
... 1960 in Australia, allowed countries. The
... in 1960 is forecast at 225,000 tons compa-
... tons in 1970, in the same period Mainland
... an export situation of 60,000 tons
... situation of 150,000 tons in 1970.
... western Europe would represent largest net
... deficit in 1960 of 1,525,000 tons against
... In Europe the largest deficit would be
... (the 51%), especially Italy and West
... to the importations in 1960 are forecast
... against 375,000 tons in 1970.
... net import deficit is expected in the supply
... , while Spain would become a net importer
... against 150,000 in 1970. A relatively net
... that will probably need 165,000 tons in 1970.

... gives a remarkable increase in the export-
... that is forecast for 1960; in Argentina, with
... 630,000 tons in 1970). Brazil and
... 7,000 tons into 450,000 tons in 1970; ...
... the mentioned study, the exports from Afghan-
... forecast at 145,000 tons from 58,000 tons in

... as international trade

... the rather vigorous increases of the world
... quotations, prevailing quotations in some
... affected by speculation and supply and de-
... well-balanced. The value per unit of meat
... rather quite gradually and only in the second
... have afterwards and reached high prices
... in this period that most countries tried to
... a series of measures to meet with the short-
... of supply.
... the beef market has now become a seller's
... can almost dictated prices and terms of com-
... realization of a world shortage of beef and the
... would has a beneficial effect to encourage that
... marginal for economically viable beef pro-

How long is this situation going to continue ? What will be the price situation in the future ? There is no doubt that in the very next few years the situation is not going to change much, and prices will remain comfortably high. On the other hand we notice that high returns in beef have prompted several investment initiatives in the world. We mention among these the undertaking in Mato Grosso, Brazil of huge beef projects with German and Italian capital. Also in the Northern territory of Australia, beef production is becoming a sound opportunity. Argentina, favoured by bank credit facilities, is now building up its livestock resources and the same is happening in USA, where tied-up pasture land is now available for cattle feeding, and in Europe where there is some indication of incentives to production.

The FAO report mentioned previously is already outdated regarding Brazil, for which recent reliable surveys indicate a target for 1980 exports of 855,000 tons as compared with 169,000 tons in 1972 and 18,000 tons in 1967.

The bonanza of high world prices has pleased the governments of most exporting countries, but with one pitfall, i.e. consumers within the producing countries have been bitterly complaining about the high prices, and the governments have had to intervene through export taxes and compulsory stocks in order to maintain requirements for the domestic market. These measures are expected to keep the supply for the world market tighter than it would have naturally been without this intervention.

The income elasticity of the demand for beef is high. However, rising prices for beef have convinced some consumers, especially in developed countries, to substitute expensive beef with relatively cheaper pork and poultry meat.

The resourceful food industry is in the process of introducing on a large scale meat substitutes and vegetable proteins that may slightly check the increase in meat consumption. The extent of the use of vegetable proteins may be favoured, in developed countries by the increasing proportion of meals consumed outside the home.

By and large there are technical and economic limitations to the rapid expansion of beef production, and in consideration of the factors mentioned above, under normal circumstances we do not anticipate for the near future any market disruption nor further spectacular rises in world market prices. Therefore we may assume the 1972 average prices as a working hypothesis.

...uation going to continue ? What will be ...ces in the future ? There is no doubt that ...few years the situation is not going to ...prices will remain good which is why we ...e notice that high returns in beef have promoted ...ant initiatives in the world. We mention ...undertaking in South America, basically of huge ...German and Italian capital. Also in the ...of Australia, beef production is becoming ...ntly. Argentina, favoured by bank credit for ...s building up its livestock resources and ...mentioned in USA, where tied-up pasture land is ...r cattle feeding, and in Europe where there ...of incentives to production.

...ntioned previously is already outdated ...y, for which recent reliable sources indicate ...72 exports of 550,000 tons as compared with ...in 1972 and 55,000 tons in 1969.

...high world prices has pleased the governments ...ing countries, but with one proviso, i.e. ...n the producing countries have been bitterly ...st the high prices, and the governments have ...ne through export taxes and compulsory stocks ...ntain requirements for the domestic market. ...are expected to keep the supply for the world ...than it would have, naturally been without this

...sticity of the demand for beef is high, the ...prices for beef have convinced some consumers, ...developed countries, to substitute expensive ...tively cheaper pork and poultry-meat. ...food industry is in the process of introducing ...tic meat substitutes and vegetable proteins, that ...heck the increase in meat consumption. The ex... ...e of vegetable proteins may be favoured, in ...ntries by the increasing production of apple... ...de the home.

...there are technical and economic limitations to ...xpansion of beef production, and in consideration ...mentioned above, under normal circumstances ...nticipate for the near future any market ... ...sudden spectacular rises in world market prices. ...we may assume the 1972 average prices as a ...

3.2.4. Ethiopian beef production and export outlook to developed countries

In most developed countries of Europe and America the beef market is characterized by the type of utilization, so that two markets have emerged: one depending mainly on domestic production for direct consumption and the other based increasingly on imports for manufacturing grades.
As a rule, manufacturing beef is quoted roughly 60% the value of butcher's beef. The butcher's beef tends to be tender and with a high fat content (marbling), come from well-fed, rather young animals and on the whole it is not too suitable for adequate processing. The ideal manufacturing beef is very lean, with fat down to 2%, intensely red-coloured, fibrous, with low water content. In general this meat is produced from rather old, range-fed animals. On the whole, the processing technique is not expected to alter the texture of the meat. Forequarters provide less appealing cuts, are often cheaper and sometimes they are destined for the processing industry. Also dairy cows at the end of their career may be utilized for processing.
Through mincing and dicing, manufacturing beef is processed into sausage, corned beef, soups,bullion cubes, ragout, "TV dinners", canned beef, freeze-dried products, etc. The outlook for all these products, often highly advertised by financially strong manufacturing firms, is for expansion during the next few years, often at the expense of fresh beef for which the demand in several cases seems to have leveled off at present prices.

The trade in manufacturing beef

The present Ethiopian production seems well suited for manufacturing beef and until an officially recognized Free-Disease Zone is developed, it is practically the only possible oulet in the case of exports to developed countries.
Furthermore, in order to comply with health regulations of developed countries, the exportation of frozen, deboned cooked meat is already possible. This product has already been exported from South America to the USA for further processing into soups and convenience foods. Most developed countries, in order to safeguard their consumers from meats prepared under non hygienic conditons, require that the product originate from plants authorized to export and which are often directly inspected by the veterinary service of the importing countries. Therefore, also in the case of frozen cooked

... production and export outlook in developed

... countries of Europe and America the beef ... characterized by the type of utilization, so that ... developed; one depending mainly on domestic ... consumption and the other is of interest ... for manufacturing grade.

... manufacturing beef is quoted roughly 60% the value ... . The butcher's beef tends to be tender and ... fat content (marbling), being from well-fed, rather ... on the whole it is not too suitable for ... . The ideal manufacturing beef is very ... 5% to 7%, intensely red-coloured, fibrous, ... content. In general this meat is produced ... old, range-fed animals. On the whole, the producer ... not expected to alter the features of the ... , provide less appealing cuts. ... are often ... sometimes they are destined for the processing ... at the end of their career ... processing.

... and dicing, manufacturing beef is processed ... corned beef, soups, bouillon cubes, extract, ... beef, frankfurter products, etc. The ... these products, often mainly advertised ... strong manufacturing firms, is for organisms ... last few years, often at the expense of fresh ... the demand in several cases seems to have ... present prices.

... manufacturing beef

... production seems well suited for manu... and until an officially recognized brand... developed, it is practically the only possible ... case of exports to developed countries.

... in order to comply with health regulations of ... countries, the exportation of frozen, deboned beef ... ready possible. This product has already been ... South America to the USA for further processing ... and convenience foods. Most developed countries ... safeguard their consumers from meat products ... developed countries, require that the product ... plants authorized to export the fresh ... inspected by the veterinary services of the ... Therefore, also in the case of ...

Table 20 - Ethiopia, recorded exports of live animals and meat by destination, 1964, 1967 and 1970

	Cattle			Sheep and goats			Meat, chilled or frozen			Meat and meat preparations		
	1964	1967	1970	1964	1967	1970	1964	1967	1970	1964	1967	1970
	.... head						.... head					
Africa (total)	2,410	1,723	1,249	13,434	2,465	1,439	1,261	519	221	–	2	–
Afars and Issas	1,919	1,7723	1,245	13,390	2,407	1,439	160	518	213	–	1	–
A.R.E.	400	–	–	–	–	–	1,082	–	–	–	–	–
Middle East ttotal)	9,389	1,996	2,483	29,698	91,729	54,241	478	66	205	512	1,034	1,157
Saudi Arabia	8,364	1,996	2,483	28,463	88,765	54,095	187	3	53	–	–	–
Israel	–	–	–	–	–	–	156	–	149	512	999	1,151
Lebanon	400	–	–	–	–	–	100	–	–	–	35	–
EEC (total)	–	–	–	–	–	–	878	520	1,513[1]	1,331[2]	2,155	1,807
Italy	–	–	–	–	–	–	528	220	1,159	1,251	2,142	1,807
Netherlands	–	–	–	–	–	–	350	300	–	–	–	–
Other Europe (total)	–	–	–	–	–	–	846[3]	267[2]	140[4]	–	21	–
GRAND TOTAL	11,799	3,719	3,732	43,132	94,194	55,687	3,466	1,672	2,044	2,563	3,237	3,000

(1) Including 354 tons to Belgium

(2) Including 80 tons to Gibraltar and Malta

(3) Including 636 tons to Gibraltar and Malta and 210 tons to Cyprus.

(4) Exports to Yugoslavia.

SOURCE: Livestock and meat industries in Ethiopia: present situation and prospects for future development
FAO, Rome 1973

Table 21 - Ethiopia, total exports of livestock and livestock products in 1971/72 (1)

	Tonnage	Value ('000 Eth $)	Price per ton (Eth. $)	Percent of total livestock export
Beef (fresh, chilled or frozen)	2,265	3,255.2	1,437.2	6.5
Mutton and goat meat (fresh, chilled or frozen)	1.3	2.5	1,950.0	(.005)
Other non-processed meat	11.5	5.8	501.4	(.01)
Canned meat	3,522	3,694.9	1,049.1	7.4
Corned beef	285.5	444.2	1,555.8	0.9
Meat extract	353.8	1,499.6	4,238.6	3.0
Pork and sausages	3.7	11.2	3,040.5	(.02)
Live animals :			Price per head	
- cattle	60,000 head	4,800.0	80.0 (2)	9.5
- sheep and goats	600,000 head	10,800.0	18.0 (2)	21.5
Hides	-	5,675.9	-	11.3
Sheep skins	-	9,357.0	-	18.7
Goat skins	-	10,578.0	-	21.1
TOTAL	-	50,124.3	-	100.0

(1) Slaughterhouse by-products are not included. In 1971/72 some Eth.$ 0.55 million of them have been exported

(2) Estimated producer prices: prices for recorded exports are Eth.$ 154, 36 and 32 for cattle, sheep and goats respectively.

SOURCE: Tucovic M. (Livestock and Meat Board), The marketing of livestock and livestock products during the TFYP and FFYP, Addis Ababa 1973

beef, a bilateral veterinary agreement between the importing country and Ethiopia becomes necessary.
Presently most of the manufacturing beef comes under the form of frozen boneless beef, while only a few firms have built up experience for the utilization of cooked beef. Evidently the technology of utilization has to be studied thoroughly and an adequate promotional campain has to be initiated. The preparation of cooked meat and frozen manufacturing beef for exports should be in cartons of 25-30 kg., without staples or other metal. In this way the weight can be easily handled and there is no risk of metal entering the processed meat. Inside the carton the meat must be wrapped in polythene or waxpaper having a colour contrasting with that of meat, again in order to avoid the risk of it ending up in the processed meat. In the case of frozen boneless beef, it is still very frequent the case of packaging made of jute and polythene (inner side) in portions of 40-55 kg.

One last consideration on the marketing channels. With all changes that are affecting this sector, the figure of the broker-importer has maintained its importance. The manufacturers seems to have decided that they do not want to be bothered with possible difficulties such as late arrival, arbitration, strikes, etc., and prefer to rely on trustworthy importers.

Trade in preserved beef

We have purposely neglected the case of finished products (such as corned beef) exported from Ethiopia and of which there are a few exemples in operation now. However, because of the high degree of investment, technology and marketing risks involved, the high taxes for importers and generally low returns for exporters, we do not consider this example valid for our projet.

Trade in butcher's beef

Most European countries have a great volume of importation of chilled meat for direct consumption. The price structure is such that a premium is being paid for this type of meat when compared with the manufacturing grades.
Ethiopia, with the creation of an officially recognized disease-free zone, will be able to capitalize on the poten-

tial of this market. However, the type of meat that sells in Europe is different from the one produced in Ethiopia. As a matter of fact, in Europe meat comes generally from young animals well-fed, with marbling. This will imply a finishing stage for the animals in Ethiopia before being slaughtered and possibly extensive feedlot operations. Zebu type cattle do not certainly enjoy the favour of the European importers for direct consumption. However the F_1 crosses with European breeds may partially solve this problem. Generally speaking, forequarters do not appeal to European buyers who prefer trimmed quarters usually containing about seven ribs (pistola). Because of this situation, it might be advisable to sell hindquarters for direct consumption and forequarters for the processing industry (sausage, hamburger, etc.).

The British market for beef has its own characteristics and domestic and imported beef is usually sold as roasts (joints) and steaks, with little demand for hamburger and sausage items. Because of this, the British import large quantities of the fatter "ox" or steer cuts from New Zealand and Australia and they buy boneless fresh hindquarters from France and Ireland to use in beef foods like "steak and kidney pie". For many years Britain has also bought hindquarter cuts from Argentina and from some African countries.

In the United States there is a typical demand for high-quality steaks and roasts, which imply fat youg beef of higher quality. But at the same time Americans eat hamburgers and hot dogs regularly. Almost 50 % of all beef consumed in the United States is ground beef. Because of leaner beef is needed for processing, the United States must import large quantities of lean manufacturing beef to mix with the fatter domestic beef cuts.

It is also noteworthly to mention the fact that there is a growing market in the world for pre-packaged ready-to-serve cuts. On the whole, the volume involved is still small, but whenever long-term contracts ca be made with big chain stores, this type of business proves to be very profitable.

3.2.5. Japanese beef market

This country had, until a few years ago, a very low per capita consumption of beef, the main source of animal proteins in the diet of Japanese being fish. However, with the improve-

ment of their standard of living, Japanese red meat consumption has shown fantastic rises and the trend in the future is quite promising. Consumer pressure is high. Every semester Japan has to increase her import quota of beef and veal. Presently per capita beef consumption is estimated at the low level of about 3 kg. Domestic production is just a by-product of the dairy industry and the base is so small that beef production can hardly be expanded. The cattle population is estimated at 3.5 million of head, accordingly. One government source recently projected 6.4 millions of head of cattle, though with present market conditions this figure may prove too optimistc. As agriculture in Japan is intensive and the cost of land rather high, the economic production of veal and beef is somewhat difficult. A situation based on importation of feeder cattle and feed grains could be possible, if enough live animals were available in the world market.

The Japanese heavy industry in its trade transactions with developing countries often looks also and intervenes directly for products required by the Japanese market. In recent years there is a growing interest in the meat industry. Two years ago a Brazilian-Japanese Joint-venture was initiated in the Mato Grosso in an operation of beef production; others are under way in Paraguay and Australia.

The importation of live cattle into Japan is subject to a license but is free from customs duty. The number, though, is restricted to 5,000 cattle (1971). In the case of meat there is a quota system (14,000 tons in January - June 1971, and 22,000 tons in July - December 1971; customs duty is 25 % ad valorem for fresh, frozen or canned beef and veal and 15 % ad valorem for salted, smoked or dried beef. Australia and New Zealand are the main suppliers of beef to Japan and minor quantities arrive also from the USA, Ethiopia, etc.. The type of meat preparations and cuts are the same as those prevailing in the European markets. Noteworthy to mention is the high priced 'kobe" beef, locally produced by fattening beef heifers. It appears that new generations in Japan are acquiring a taste for hambrgers and hot dogs, for which the Ethiopian beef seems already fit.

As a general indication, we report that in 1971 wholesale prices for beef in Japan ranged from US $ 2.40 to $ 2.58 per kg., while the retail prices were from US $ 4.19 up to $ 4.28 per kg.

3.2.6. Beef market in Arab countries

Because of the proximity to Ethiopia, this market appears quite interesting, and while presently net imports are about 40,000 tons, during the next seven years this figure may well more than double.
Several countries with varying economies are included under the denomination of Arab Countries. One common denominator is the fact that all livestock has to be slaughtered according to Mohammedan rites. A few countries, in order to be surer of the type of sluaghtering, prefer to import live animals. Another important characteristic is that these countries do not ban, except temporarily (as in the case of Lebanon) the importation of livestock and meat products from African countries, although vaccinations and quarantine observations for 14 to 21 days may possibly be requested by individual countries. This sanitary situation is quite interesting in the case of our project, for the trade which could develop up to the time when the disease-free zone will be officially recognized.
Arab countries are large consumers and importers of sheep and mutton, this type of meat being considered more desirable than beef. Once business channels become established, it will be advisable to market also some sheep meat produced within or outside the Southern Rangelands. In doing so overhead costs may be better averaged.
In the case of beef consumption in these countries, it appears that there are two distinct markets: one of lean, mature meat for local consumption, that is mainly supplied by Somali exporters, and a second, tender young beef for the Europeans who are employed in the oil industry or tourists (Lebanon), which is upplied mainly by Australia and New Zealand.

The following are essential remarks on a few individual countries:

Saudi Arabia - The export market, mainly for live animals, is dominated by Somalia and only a small share comes from Ethiopia. In general, prices are not considered too rewarding. The consumers preference is for beef with fat, and in relation to this big animals are preferred.

Kuwait - This country is known to have the highest per capita GNP in the world. Another characteristic that has some bearing on the diet is the fact that more than half of the resident population is made up of foreigners. Kuwait imports large volumes of meat (fresh, frozen, canned, smoked, etc.) from all major producing countries in the world, including also Somalia, Tanzania, Sudan and Kenya. Due to the large foreign community there is room for almost any type of meat, lean, marbled, etc. Kuwait is considered a good potential market for the Ethiopian product.

Aden - This country's business is suffering as a consequence of the closing of the Suez Canal. Aden was a free (from duty) town, with a busy port where several ships would stop for refueling, refilling of fresh water and possibly also for some food. Obviously the re-opening of the Suez Canal would reinvigorate the economy and a potential for quality beef could be forecast, especially in view of catering for ships. As of now the market is dominated by Somalia, and the type of beef is that traditional in African Countries.

Libya - This oil-rich country in recent years has become an interesting importer of beef, either fresh or frozen. The local population seems to prefer sheep meat, while beef is consumed mainly by foreigners. During the last two years, however, the extradition of Italians and other foreigners seems to have lowered the demand. Presently consumption appears to be restricted to oil company personnel, and the type of tender beef required is that known especially in European markets with a fair amount of fat. Presently, because of the closing of the Suez canal, beef has to be air-freighted to Libya. We are aware of a few shipments of Ethiopian beef to Libya with satisfactory results. Libya may become an important outlet for quality cuts (tenderloins, T-bone steaks, etc.).

Lebanon- The beef market in Lebanon is now distorted because of the closing of the Suez Canal. Lebanon and its capital, Beirut, are well-known for being a busy commercial center with a booming tourist industry. The type of beef preferred in this country is that known on the European markets, tender and young.

3.2.7. Trade of beef in African countries

From the dietetic point of view Africa on the whole would be a big potential market for beef, since the protein intake is the lowest in the world and, to make things worse, animal protein consumption is often negligeable.

Evidently the economic situation of most developing countries limits greatly the actual amount of importation. Border trade in live animals is very important in most African countries though the actual amount is often unrecorded, due often to the lack of border controls.
Disease control regulations and national veterinary service action in general would not be a barrier to present Ethiopian beef production. This with the only exception of a few beef producing countries that seem to use the veterinary regulations as a non tariff-barrier to prevent the inflow of products from other countries. However, from the point of view of our project, the portion of trade to be taken into account is what moves through normal monetary market channels.
The quantities so involved are much smaller, but also closer to the potential of exportable surplus available in the Southern Rangelands. The big advantage of this type of trade lies in the fact that it may begin in the very near future, without waiting for the official recognition of the disease-free zone.

In the foreign trade of beef within Africa, two types of markets may be singled out; the most important now is oriented to the consumption by local people. The type of beef is that presently available in Ethiopia and for transportation and preservation reasons it is often under the form of frozen deboned meat. A second market in Africa for imported beef is the type that is aimed to the European consumers that are working (road and dam construction) or touring Africa. Tourism in Africa is still in its preliminary stage, but there is no doubt about the bright potential existing in the years ahead. Hotel chains will probably be constructed in several African countries and there is a sound possibility of developing contracts for important quantities of quality beef between our project area and catering firms.

Among the most interesting markets in Africa we list Zambia, with an import volume of livestock and related products amounting to US $ 12.5 millions in 1969, for 10,200 tons of carcass weight equivalent. No large variation is expected in the near future, but in 1980 overall imports may be in the vicinity of 19,500 tons and in 1985 close to 31,500 tons.
Other interesting markets are Ghana, Zaire, Nigeria, the key factor actually determining the market expansion being a generalized sound economic development, while broadly speaking, per capita

TABLE 22 - BEEF IMPORTS IN SELECTED AFRICAN COUNTRIES

Exporting countries		Sudan 1970	Liberia 1970	Ghana 1970	Nigeria 1970	Libya 1969	Tanzania 1969	Uganda 1969	Kenya 1969	Sierra Leone 1968
- Live cattle		281	6,250	61,882	40	3.249	12	1001	121	
Total N°	Ethiopia	281								
	Senegal		198	350						
	Mali		1,130	33,912						
	Ivory Coast		3,682	—						
	Guinea		240	—						
	Sierra Leone		1,007	—						
	Upper Volta			19,160						
	Niger			8,057						
	Argentina					952				
	Bulgaria					838				
- Meat canned & preseried										
Total (tons)		42	256	2,322	57	707	65	33	68	212
of which from	W.Germany	20	4	1		29			1	
	Nethrelands	14	--	74		78	3	3		61
	China	3	1	21		26	4	3		14
	USA	—	47	18	50	77	12	2	1	2
	Denmark	—	96	58		297	19	19	34	25
	UK	—	22	17		59	5	1	12	20
	Tanzania	—	—	16		—				
- Beef										
Total (tons)		—	192	243	7	2,337				165
of which from	Kenya	—	2	20		331				
	Nethrelands	—	2			44				5
	Germany	—	32			27				3
	France	—	1			27				
	UK	—	26	15	1	5				9
	Swedeen	—	6	—	—	—				
	Denmark	—	85	29	3	134				43
	USA	—	28	—	1	—				
	Australia	—	5	1		5				29
	New Zealand	—	5	3		—				52
	Mali			49		—				
	Nigeria			73		25				4
	Ethiopia			6		—				
	Bulgaria					344				
	Tunisia					506				

SOURCE: U.N. - Economic Commission for Africa - Trade by Commodity, New York 1972

beef consumption in most African countries is forecast to remain modest in the near future.

3.2.8. Ethiopia and her potential markets

There is a great deal of fluidity in world market quotations, and the relationship between different markets in different nations does not always remain unchanged.
Furthermore, while in theory there should be a complete market transparency, i.e. the possibility for a merchant to know all prices in all areas and to sell his product any time the profits are highest. In practice this is often not the case, especially when developing countries are involved. Deficiency in trasportation facilities or special investment in the meat operation by the importing countries, or need for hard currency can play a role as determinant as price in the choice of the eventual market.
After this introduction, we believe that table 23 can be meaningful to evaluate some alternatives available to the meat industry of Ethiopia. Some of these opportunities are conditioned upon the official recognition of the disease-free zone (export of live cattle and fresh and frozen beef to Europe), other opportunities imply adequate slaughtering facilities and meat preparation equipment (export of quality cuts). The opportunity for exporting cooked frozen beef to developed countries is conditioned upon the approval of the export plants by the governmental veterinary service of the importing countries. Finally, the export of meat and cattle to African and Middle East countries would not require any particular change from the present situation.
Table 23 is only an example that we consider typical of what profits/costs were valid in 1972, when the reported market prices occurred. We may assume that, if the Ethiopian products were properly prepared, they might have sold at similar levels. However, we emphasize that this remains only an excercise in order to appraise and evaluate our working hypothesis.

3.3. Abattoirs by-products

Hides and skins are a very important by-product of the beef industry. The year 1973 opened with very high prices due to the fact that supply could not keep up with inflated world demand. In the mast few years the entrance into the market of synthetic leather caused some

TABLE 23 - DISCOUNTED PRICE OF BEEF PRODUCTS AVAILABLE IN KEY MARKETS. AND RELATED TO POTENTIAL SUPPLY FROM ETHIOPIA
(all values are in US dollars)

Market place	Type of beef product	Average prices $/t at the importers premises (1)	Unloading costs and freight from port to warehouse	Veterinary fee, custom duty, IVA tax brokers' commission/t	Type of transportation and cost and insurance/t	Deducted Fob Ethiopian port/t
Mediterranean port in Europe	- Frozen, forequorters manufacturing grade, boneless	1,480	57	190 (2)	sea vessel 115	1.118
	- Frozen hind quarters, bone-in	1,650	57	200 (2)	" 120	1273
	- Frozen tenderloins	2,330	57	255 (2)	" 132	1886
	- Chilled forequarters 1st quality	1,670	52	205 (2)	airplane 540	873
	- Chilled hind quarters 1st quality	2,750	52	290 (2)	" 540	1868
	2nd "	2,080	52	235 (2)	" 540	1253
	3rd "	1,830	52	220 (2)	" 540	1018
Lebanon	Quarters (compensated) (bone-in)	1,270	30	no duty 120	sea vessel 115 airplane 360	995 750
Jeddah	Live animals per tons	450	15	no duty 70	sea vessel 15	350
Kuwait	Frozen compensated quarters	1,050	35	4% 165	sea vessel 45	805
	Frozen hind quarters	1,200	35	185	" 45	1035

NOTE: Feeder Calf - beef breed (65 kilos weight) - Price in Europe 157 US $; unloading costs (trasportation), veterinary fee, IVA, duties and other taxes 22 US $; flight costs from Ethiopia 55 US $; discounted price F.O.B. Ethiopia 80 US $ per head of cattle.

(1) Prices prevailing in 1972

(2) Custom duty was suspended in the second half of 1972 in EEC and several other European markets.

SOURCE: Elaborated by Consultants from data available of different sources.

concern for the future of the leather industry. However, demand for natural leather has remained strong and we may be optimistic in our outlook for the next 5-10 years.
Ethiopia is a big producer of skins, though a large volume goes to waste every year, approximately 1 million pieces according to estimates). Furthermore, the average quality is rather poor as a consequence of poor processing methods.
All in all there are three commercial grades available on the Ethiopian market now. The type called "abattoir" comes from municipal slaughterhouses and is usually marketed through auctions. Quotations by the end of March 1973 were Eth. $ 39 per farasula(2.1-2.3 skins). A second grade skin is the type called "butcher's type", which is still a fairly good skin, but which does not originate from slaughterhouses and is shade-dried. Quotations for this type at the end of March 1973 were Eth. $ 30-32 per farasula (17 kg). The lowest quality goes under the denomination of "caravan", is usually sun-dried and can be used almost exclusively for shoe-soles.

For the type of operation we have in mind for our project, the quality of skins would be enhanced (fewer wounds, more cleanliness, large size because of better fed animals, etc.) and therefore the quotations expected for this by-product would be in line, if not at a higher level, with those of the "abattoir type".
Noteworthy to mention is the fact that most meat packers prepare, cure, and actually export the skins directly. However, the opportunity to sell fresh salted skins has to be taken in consideration, at least in the preliminary stages. Under the present bullish market situation, fresh skins could reach Eth.$ 1.0-1.40 per kg.
The process of salting skins has to be done promply. Usually each skin requires 6 - 8 kg. of salt (cost of salt - tax exempt - is Eth.$14 per quintal). A team of 4 - 5 workers can easily salt up to 120 - 140 skins daily. Reportedly very little equipment is needed for this type of processing, the biggest investment being adequate storing facilies. At the slaughtering stage it is advisable to avoid the use of knives that could damage the valuable skins.
Any time a slaughtering plant reaches a certain size, the production of other by-products becomes economical. Therefore it is advisable to build in the proximity of the plant a rendering factory where tallow, bone meal and meat meal could be produced. Some 3 - 4 kg. of tallow (higher quantity in the case of young finished cattle) could be easily obtained per slaughtered animal and the obtainable price would be approximately 50 - 60 cents/kg. In consideration of the fact that Ethiopia is not self-sufficient in tallow (in 1971 imports of inedible tallow exceeded 565,000 Eth.$), it seems that there is room for expansion of production. A rendering plant should be connected to a large slaughtering plant that should also process products coming from other areas.

...ture of the leather industry, however, depends ...
... has been so strong and so may be expected ...
... next 5-10 years.

... production of skins, though a large ... goes ...
... approximately 1 million pieces (...
... therefore, the average quality ... their poor ...
... production methods.

... these commercial grades available on the ...
... the type called "abattoir" ... from ...
... ... through ... Agency ...
... ... Eth. $ ... per ... (Birr ...
... as the type called ... tannery ...
... skin, but which does not ...
... -dried, conditions for this ...
... $ ... per ... (... the lowest ...
... ... of "carcass", ...
... ... exclusively for ...

... also we have in mind the ...
... could be enhanced (... ...
... of better fed animals, etc.), and ...
... for this by-product could ...
... those of the "abattoir" type.
... is the fact that most ...
... the skins directly ...
... called drip has to be taken ...
... relatively cheaply. Under the present ...
... skins could reach Eth.$ 1.0-1.2 ...
... drying stage has to be done ...
... of ... (cost of ...
... A team of 4 - 5 workers ...
... daily. Reportedly ...
... necessary, the ...
... the slaughtering stage ...
... that could damage the ...
... slaughtering plant reaches ...
... ... because ...
... ... of the plant ...
... and ... meal ... would be ...
... ... on the ...
... ... per slaughtered animals ...
... ... 13 - 14 ...
... not well-... (...
... exceeded 120,000 ...
... production. A ...
... slaughtering ...
... areas.

The basic material for processing would be fallen animals, meat scraps and bones from other collectors and butchers' shops. Besides tallow, a rendering plant produces meat and bone meal which are generally mixed with a specified protein percentage and sold to feed industries.

In 1973 the following prices were paid for these products: meat meal 40 ¢/kg; bone meal 24¢/kg; bone and meat meal 34 ¢/kg; all these quotations were above world price levels.