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Dairy Imports in Sub-Saharan Africa and the Welfare Implications of Import Policies

Shahla Shapouri
Stacey Rosen

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Abstract

Concern over nutritional deterioration and growing food import dependency has increased during the last decade in Sub-Saharan Africa. Between 1961 and 1988, Sub-Saharan Africa's dairy imports increased nearly sixfold, growing at an annual rate of 6.5 percent. This trend is a cause for concern as high import growth is financially difficult to sustain. This paper evaluates factors affecting dairy imports in 39 countries. The results indicate that government policies encouraged import growth in most of the countries included in the study. The welfare effects of import policies, such as direct import or consumer price subsidies, exchange rate overvaluations, and distribution of food aid imports, are reviewed in addition to the policies of exporting countries. The study covered the period 1961 to 1988, with a particular focus on 1977-88, years for which food aid data were available.

Keywords: Sub-Saharan Africa, dairy, imports, domestic policies, production, consumption, food aid

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Dairy Imports in Sub-Saharan Africa and the Welfare Implications of Import Policies

Shahla Shapouri
Stacey Rosen

Introduction

Concern over nutritional deterioration and growing food import dependency has increased in Sub-Saharan Africa during the last decade. Most food-related studies of the region have focused on the availability of grains because of their importance in the diet and the availability of data. Far less attention has been paid to the livestock and dairy sectors. Population growth, rising incomes, urbanization, and government policies promoting dietary improvements have changed consumption patterns in these countries. With slow domestic production growth, import dependency for commodities such as dairy products has increased significantly. Between 1961 and 1988, Sub-Saharan Africa's dairy imports increased nearly sixfold, growing at an annual rate of 6.5 percent. This trend is a cause for concern as high import growth is financially difficult to sustain.

This paper evaluates factors affecting dairy imports in 39 Sub-Saharan countries, by region, including West Africa (Benin, Burkina Faso, Cameroon, Cape Verde, Chad, Cote d'Ivoire, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo), East Africa (Burundi, Ethiopia, Kenya, Rwanda, Somalia, Sudan, Tanzania, Uganda, and Zaire), and Southern Africa (Angola, Botswana, Comoros, Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Zambia, and Zimbabwe).

Factors examined to determine the impact of policies on import growth include income, population, production, and domestic policies. The results indicate that government policies encouraged import growth in most of the countries included in the study. The welfare effects of import policies, such as direct import or consumer price subsidies, exchange rate overvaluations, and distribution of food aid imports, are reviewed in addition to the policies of exporting countries. The study covered the period 1961 to 1988, with a particular focus on 1977-88, years for which food aid data were available.

Overview of International Dairy Market

Total world cow milk production neared 470 million metric tons in the late 1980s. The recent annual production growth of about 1-1.5 percent was less than the historical 2-percent annual growth during the 1970s and the mid-1980s. Europe, the Soviet Union,

and North America (the United States and Canada) account for about 80 percent of world production (1). 1/

Most dairy products are highly processed and are traded largely among higher income countries. An exception is nonfat dry milk which is imported by lower income countries. Only about 5 percent of the world's milk production is traded. Storable products, mainly cheese, nonfat dry milk, butter, and protein components such as casein, dominate dairy trade (fig. 1).

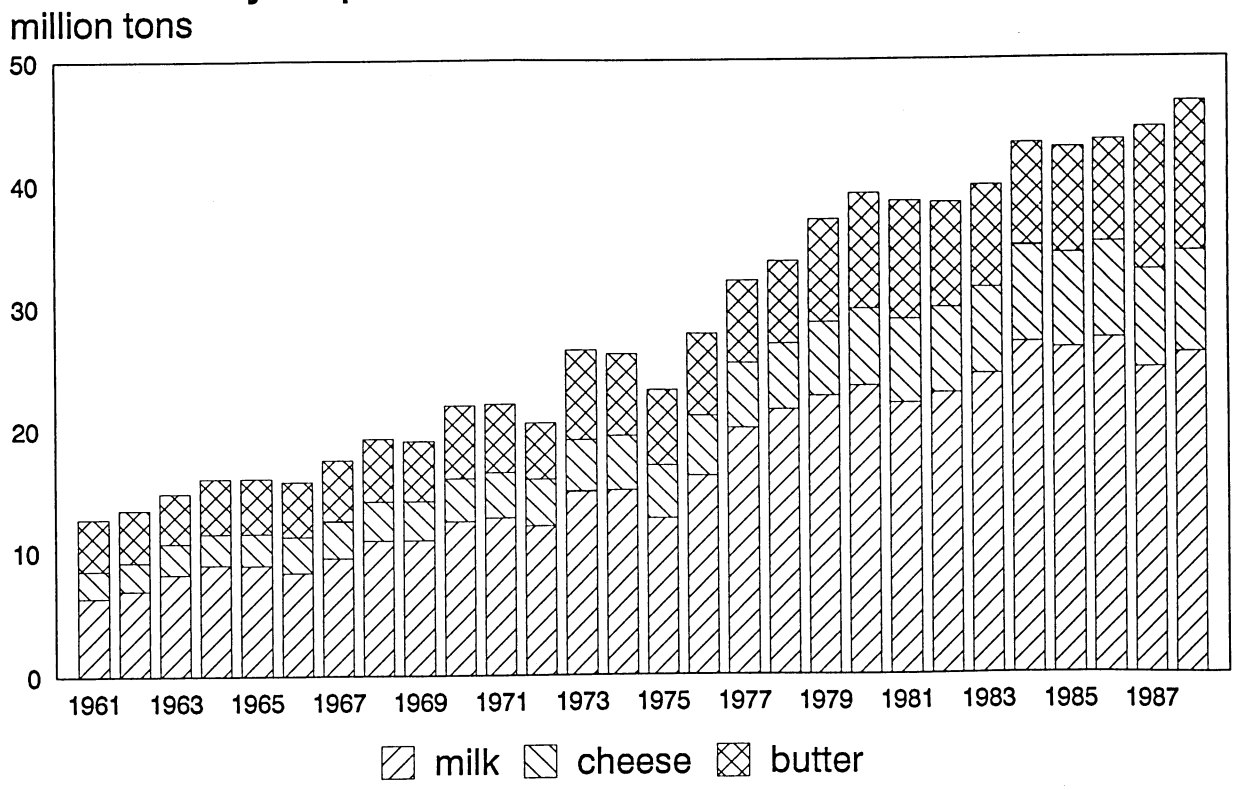
Government policies play a significant role in international dairy trade. The major industrialized dairy producers, except New Zealand and Australia, operate dairy programs that provide relatively high levels of assistance to their dairy sectors (1). In order to maintain domestic supply and demand balances, many countries have used the international market as an outlet for surplus dairy production.

Most milk is consumed where it is produced, either as fluid or manufactured dairy products. The share of traded dairy products has remained stable through time, but the traded quantities have increased with production. Developed countries are large net exporters, while developing countries are large net importers. The EC, New Zealand, and Australia are the most active traders,

1/ Underscored numerals in parentheses indicate items in the Reference section.

Figure 1

World Dairy Exports



with the EC and New Zealand clearly dominating. Other industrialized countries, such as the United States and Canada, participate in selected product markets. The Soviet Union is the largest importer of dairy products, accounting for half of the world butter trade. The main importers within the developing country group are oil exporters such as Mexico, Venezuela, Algeria, Iran, Saudi Arabia, and Malaysia. These countries have increased their imports since 1989 as prices of dairy products have fallen and oil prices have risen. Imports of most developing countries, however, are constrained by limited foreign exchange availability. This has lowered demand and contributed to the excess supply on the world market, and subsequently depressed prices (6).

Dairy Imports in Sub-Saharan Africa

Dairy product imports by Sub-Saharan countries relative to total world trade are small, but dairy product consumption in some countries depends almost totally on imports. The trend between 1961 and 1987 exhibited an increase of nearly sixfold in Sub-Saharan imports, with an annual growth rate of 6.5 percent (fig. 2). Most of the import growth occurred during 1961-76 (8.4 percent per year) and since then has slowed to less than 1 percent per year. The earlier high rate of import growth most likely stemmed from slow domestic production growth (1.7 percent per year). The latter has not kept pace with the 3-percent population growth for the region (fig. 3).

Figure 2

Sub-Saharan Africa's Dairy Imports

1961=100

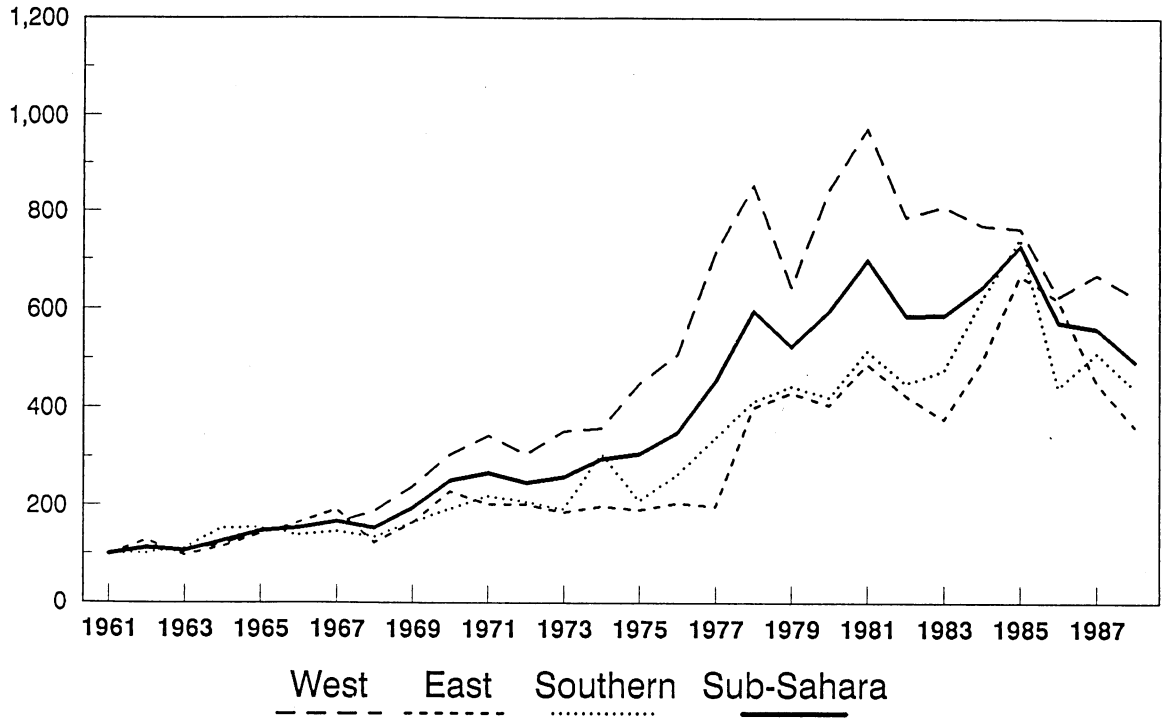
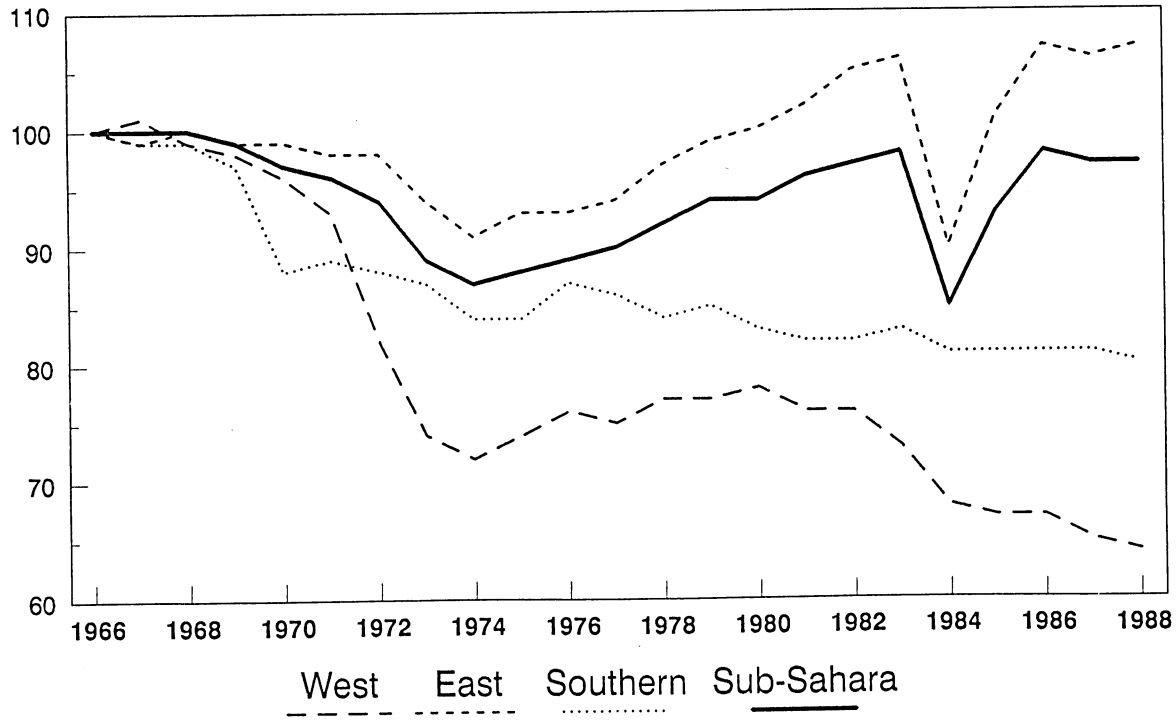


Figure 3

Per Capita Milk Production

1966=100

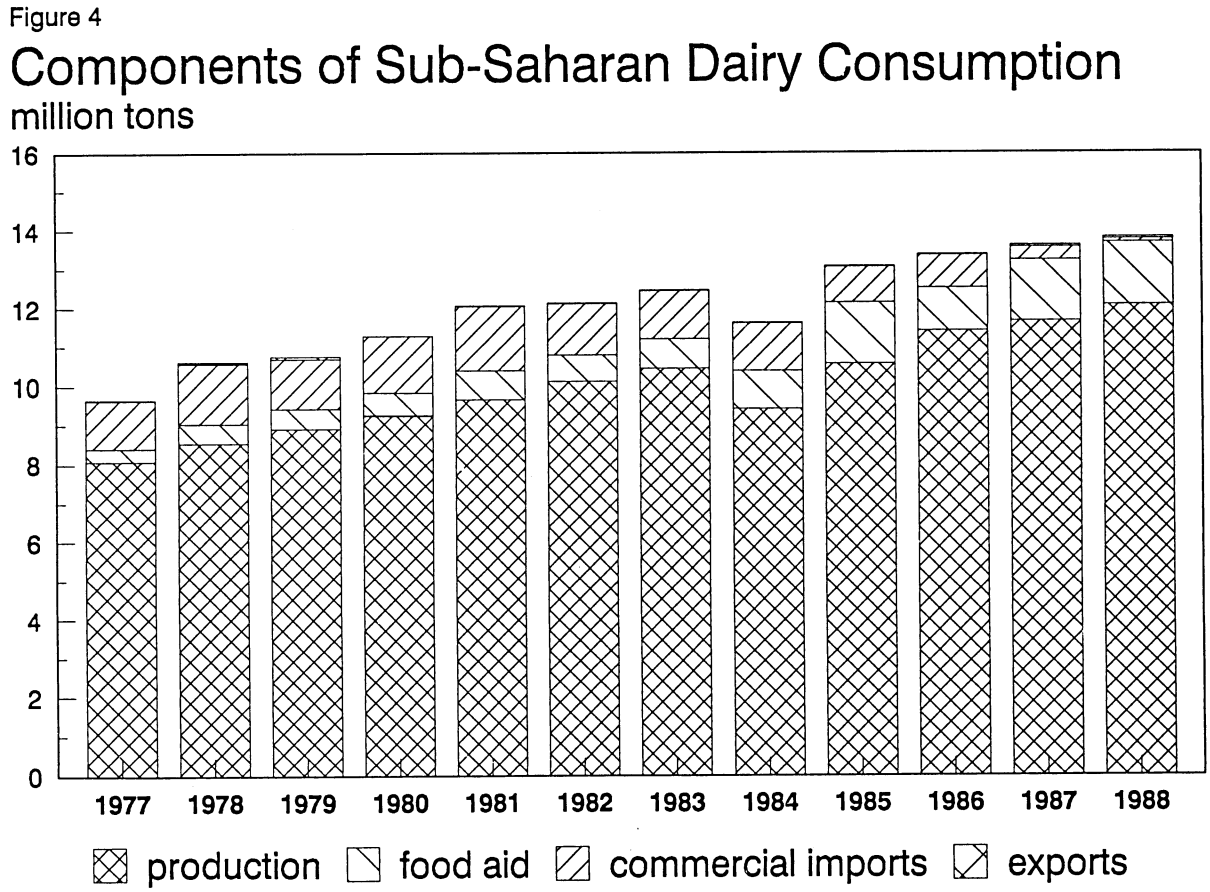


During 1977-88, production performance improved, growing 3.5 percent per year, while import growth slowed to 0.4 percent (based on 39-country statistics). This resulted in little change for both the self-sufficiency ratio (production as a percentage of consumption) and the average per capita consumption levels (fig. 4). The average dairy self-sufficiency ratio, about 95 percent in the early 1960s, fell to 83 percent during 1977-88.

On the sub-regional level, the rate of import growth during 1977-88 was the highest in East Africa (3.7 percent), followed by Southern Africa (1.7 percent) and West Africa (-1.6 percent). The import dependency ratio (imports as a percentage of consumption) showed a contrasting pattern, with East Africa being the lowest import dependent sub-region (6 percent average), followed by Southern Africa (36 percent) and West Africa (42 percent).

Individual country import growth rates varied significantly (table 1). Of the 39 countries studied, Kenya and Zimbabwe were net exporters of dairy products until the early 1980s. The range of annual import growth for the remaining 37 countries was from a decline of 21 percent in Zambia to an increase of 18 percent in Sudan. Three countries registered import growth of more than 15 percent per year (Ethiopia, Rwanda, and Sudan). This high rate of import growth was due to the low level of imports in the base period, so that even with the high import growth, their import

Figure 4



dependencies remained low (less than 13 percent in Ethiopia, 21 percent in Rwanda, and 4 percent in Sudan in 1986-88).

In countries with declining rates of imports, the annual range was from -0.03 to -21 percent. These include Cape Verde, Ghana, Guinea-Bissau, Liberia, Nigeria, Somalia, Tanzania, Madagascar, and Zambia. In all, with the exception of Cape Verde, Ghana, Liberia, and Madagascar, lower imports significantly reduced import dependency.

The highest dairy import dependent countries were Cape Verde, Cote d'Ivoire, Gabon, Zaire, and Congo, with imports contributing more than 85 percent of consumption in 1986-88. The countries with the lowest import dependencies, less than 10 percent, included Chad, Kenya, Somalia, Sudan, Tanzania, Uganda, Zambia, and Zimbabwe (table 2).

Commercial and Food Aid Imports

Since 1977 (the year aid data on dairy products became available), the food aid share of total dairy imports has increased markedly, from 21 percent in 1977 to 83 percent in 1987 (fig. 5). Of the 39 countries studied, Cote d'Ivoire, Gabon, and Nigeria did not receive any dairy aid during the study period. Benin and Liberia were food aid recipients in the earlier years, but were not during 1984-88. The reverse was true in Kenya and

Table 1--Dairy supply and utilization growth in Sub-Saharan Africa

Country	Annual growth 1/				
	Production	Imports	Food aid	Commercial imports	Consumption
	Percent				
West:					
Benin	3.02	11.25	NA	16.72	5.00
Burkina Faso	1.47	1.17	-2.73	10.75	1.35
Cameroon	2.03	3.56	-15.82	3.78	2.68
Cape Verde	.54	-1.58	-1.71	-1.39	-1.33
Chad	-.06	2.69	-.63	14.90	0
Cote d'Ivoire	6.31	4.19	NR	4.19	4.44
Gabon	13.27	.90	NR	.90	1.12
Gambia	.37	12.65	8.81	16.27	7.46
Ghana	4.55	-4.39	-.79	-8.17	-2.77
Guinea	1.05	8.13	-.10	12.48	2.28
Guinea-Bissau	2.26	-1.05	-5.59	8.39	1.28
Liberia	2.39	-1.13	NA	1.38	-.46
Mali	-.29	5.47	5.97	2.73	.47
Mauritania	2.00	5.29	10.40	2.74	2.64
Niger	1.21	14.21	15.48	13.22	2.34
Nigeria	.97	-12.30	NR	-12.30	-5.39
Senegal	1.11	5.66	1.71	6.40	3.81
Sierra Leone	-.14	.27	8.80	-4.38	.03
Togo	2.57	7.49	14.60	-21.04	4.48
East:					
Burundi	-6.14	2.01	-12.18	15.92	-4.85
Ethiopia	1.39	15.41	14.33	24.18	2.51
Kenya	7.70	2/	2/	2/	7.96
Rwanda	6.00	16.56	12.89	33.40	7.57
Somalia	3.06	-5.87	5.24	-16.85	2.62
Sudan	4.90	17.67	3.72	48.35	5.21
Tanzania	2.48	-8.95	-3.46	-30.42	1.41
Uganda	.09	8.04	3.26	14.82	.43
Zaire	1.80	.99	-16.65	8.18	1.07
South:					
Angola	.33	2.48	8.71	1.33	1.32
Botswana	1.92	3.26	8.48	2.95	2.23
Comoros	3.02	11.58	-3.31	14.81	6.83
Congo	1.41	10.49	-25.59	10.30	8.81
Lesotho	2.34	1.30	5.75	-22.30	1.84
Madagascar	2.48	-.03	12.12	-7.76	1.42
Malawi	3.01	1.04	-22.42	7.77	2.40
Mauritius	.20	2.12	-23.35	4.16	1.64
Mozambique	1.17	4.17	9.39	-.52	2.45
Zambia	3.28	-20.78	-13.50	-23.66	-1.06
Zimbabwe	5.11	2/	2/	2/	4.51

NA = not applicable; countries intermittently receive food aid.
NR = not receiving; countries do not receive food aid.
1/ Calculated from 1977-79 (avg.) to 1986-88(avg.).
2/ Kenya and Zimbabwe were exporters of dairy products until 1980.
Source: Food and Agriculture Organization (UN).

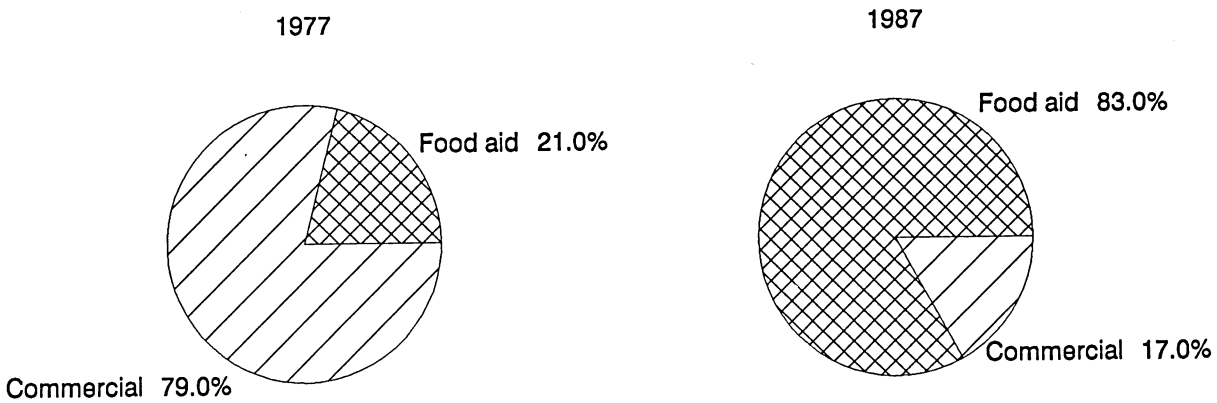
Table 2--Dairy import dependency and food aid share of total imports

Country	Total imports/ consumption		Commercial imports/ consumption		Share of food aid of total imports	
	1977-79	1986-88	1977-79	1986-88	1977-79	1986-88
	Percent					
West:						
Benin	17.7	30.4	10.9	30.4	39.0	0
Burkina Faso	38.9	39.6	6.3	16.9	85.8	56.5
Cameroon	41.9	45.5	40.9	45.3	1.0	0.2
Cape Verde	85.1	86.9	31.0	34.2	63.9	60.8
Chad	2.2	2.7	.3	1.0	79.5	43.2
Cote d'Ivoire	93.3	91.3	93.3	91.3	0	0
Gabon	99.0	97.1	99.0	97.1	0	0
Gambia	43.8	70.5	19.4	41.5	53.9	41.4
Ghana	86.1	75.5	42.8	30.5	51.8	59.6
Guinea	13.2	22.1	6.9	17.4	47.1	16.6
Guinea-Bissau	32.7	26.2	6.5	12.5	79.9	48.8
Liberia	83.2	74.8	65.6	74.8	21.4	0
Mali	10.6	16.4	5.3	6.7	55.4	52.6
Mauritania	17.2	21.8	12.8	13.0	24.8	37.2
Niger	4.8	13.9	2.8	7.5	37.1	43.3
Nigeria	62.1	33.5	62.1	33.5	0	0
Senegal	50.6	59.8	40.9	51.6	19.7	14.1
Sierra Leone	41.0	41.6	32.2	20.2	19.7	55.5
Togo	29.6	43.7	14.8	2.1	68.0	94.9
East:						
Burundi	11.3	20.6	2.6	16.3	75.3	19.6
Ethiopia	4.1	12.8	.3	2.3	93.9	76.0
Kenya	.4	.3	0	.2	91.7	14.9
Rwanda	9.0	20.9	.7	7.2	90.2	57.4
Somalia	6.9	3.3	5.1	.9	34.0	69.4
Sudan	1.3	4.0	.1	2.9	96.2	27.0
Tanzania	14.3	5.6	6.0	.3	60.0	93.9
Uganda	3.0	5.9	.9	3.1	69.6	47.8
Zaire	89.0	89.7	47.3	80.0	45.5	10.7
South:						
Angola	43.1	48.3	37.7	38.2	13.9	21.7
Botswana	20.0	24.1	19.0	22.4	6.3	7.1
Comoros	35.0	53.6	24.2	48.8	29.3	9.3
Congo	74.9	78.8	68.7	78.5	8.9	.4
Lesotho	48.9	46.2	17.7	2.1	63.7	95.2
Madagascar	45.8	39.7	36.8	15.4	19.3	63.5
Malawi	32.9	29.0	16.5	27.2	52.0	6.4
Mauritius	73.9	77.0	60.3	75.6	18.4	1.9
Mozambique	37.5	41.8	23.5	18.0	41.5	60.6
Zambia	36.0	6.2	27.6	3.7	25.8	59.8
Zimbabwe	.1	1.0	.1	.4	0	58.2

Source: Food and Agriculture Organization (UN).

Figure 5

Dairy Imports: Food Aid vs. Commercial



Zimbabwe, where significant levels of dairy aid were received since only the early 1980s.

The growing food aid dependency of these countries is of great concern. From 1977-79 to 1986-88, the aid share of total dairy imports increased in 14 countries. During 1986-88, dairy aid contributed more than 50 percent of total dairy imports in 15 countries and this share exceeded 75 percent in 4 of these countries (table 2). This high rate of aid dependencies for countries with low self-sufficiency ratios, such as Cape Verde and Ghana, means establishing consumer habits that may be difficult to support financially in the long term. The current level of food aid, if not reduced, is not expected to grow much, particularly if the current GATT negotiations lead to a decline in surplus commodities. Consequently, with a growing import dependency in most countries and a history of commitment to consumers, governments may be forced to import commercially, thereby further straining their limited financial resources.

Factors Affecting Imports

The key factors shaping imports are market demand and supply, and policies. Both domestic and international policies are expected to influence import levels.

Demand Pressure

Total consumption of dairy products is derived by adding production to net imports. Changes in stocks are not included because of the lack of data and the short shelf-life of most dairy products. Average annual consumption growth for the region during 1977-88 was 3 percent, the same as population growth.

Income growth did put a major pressure in increasing demand for dairy products in some countries (table 3). From 1977-88, per capita income for the Sub-Saharan region grew only about 1 percent per year, and when Nigeria is excluded, the growth rate decreases to near .05 percent (8). In fact, positive income growth occurred only during the late 1970s, and since then (1980-88) the per capita income trend was -4 percent; without Nigeria, the rate of decline slows to near -3 percent (8).

During 1977-88, per capita income declined in 14 countries and stagnated in 3 (table 3). Few countries performed well. Cameroon, Burundi, and Botswana had the highest annual per capita income growth, ranging from 7 to 9 percent.

In addition to income, changes in commodity prices are key determinants of consumption. However, lack of price data leaves a major gap in demand analysis for dairy products. Given the recent declining trends in international dairy prices, and the consumer oriented policies of these governments, changes in prices are expected to have a limited impact on dairy consumption in these countries. Hence, population growth remains the principal force behind consumption growth. As a result, maintenance of constant per capita consumption levels translates into a 3-percent annual increase in future demand.

Production Performance

According to FAO production estimates, from 1961 to 1977, total milk production in the region grew about 30 percent, an annual growth rate of less than 2 percent. From 1977 to 1988, production expanded 3.5 percent per year. While the region's share of world production is very low, about 1 percent, its population share is about 12 percent.

Sub-regional milk production growth and the share of total Sub-Saharan production have varied considerably. West Africa, with the largest population, had the lowest production growth and held only a 13-percent share in 1988. East Africa had the highest annual growth, at more than 4 percent, and the highest share of total production, 79 percent. Southern Africa, which accounted for 7.5 percent of total production in 1988, achieved annual production growth of about 2.3 percent. In per capita terms, output was highest in East Africa, 49 kilograms (kg), followed by Southern Africa, 13 kg, and West Africa, only 8 kg.

In Sub-Saharan Africa, most dairy output is produced by pastoralists and agropastoralists, with traditional objectives of subsistence and survival over long periods of drought and regeneration (18). Each family requires a basic stock of animals for survival. However, as families expand, this stock is expanded. Consequently, overstocking and overgrazing caused a deterioration of the rangelands. Milk yields of these producers are low. For example, in Ethiopia, a livestock exporting country, cows do not reach maturity for 3 to 4 years, calve every 2 years, and produce only about 250 kg of milk per lactation (24). This is a very low yield, even compared with neighboring

Table 3--Financial indicators: Growth, 1977-88

Country	GDP	Export earnings	Debt service
	Percent per year		
West:			
Benin	6.70	4.42	20.24
Burkina Faso	2.11	3.20	17.39
Cameroon	11.04	7.05	23.70
Cape Verde	15.08	7.00	47.60
Chad	-1.00	-1.21	1.93
Cote d'Ivoire	-.26	1.44	15.56
Gabon	3.68	1.87	-4.23
Gambia	-1.76	5.62	31.91
Ghana	-7.84	-5.25	9.25
Guinea	2.28	7.29	1.93
Guinea-Bissau	17.92	.26	22.99
Liberia	4.19	-1.92	-9.65
Mali	2.93	6.48	17.03
Mauritania	4.87	13.45	5.29
Niger	-.30	-1.15	31.81
Nigeria	5.44	-3.18	41.85
Senegal	3.20	.68	4.23
Sierra Leone	2.88	-4.23	-17.25
Togo	-.42	2.97	9.81
Average	3.72	2.36	14.28
East:			
Burundi	8.28	3.97	28.45
Ethiopia	4.71	1.96	20.45
Kenya	2.81	.13	21.00
Rwanda	10.03	.37	31.84
Somalia	12.85	-2.91	5.98
Sudan	.96	-4.24	4.56
Tanzania	5.39	-5.75	3.64
Uganda	-16.06	-1.40	19.19
Zaire	-9.38	2.47	11.33
Average	2.18	-.60	16.27
South:			
Angola	6.89	8.28	NA
Botswana	10.69	13.84	23.65
Comoros	3.49	6.17	NA
Congo	11.15	15.12	25.00
Lesotho	1.58	-3.23	37.00
Madagascar	1.40	-3.05	18.02
Malawi	3.41	4.13	13.02
Mauritius	3.24	5.49	25.27
Mozambique	.53	-8.22	NA
Zambia	-2.73	-3.93	-10.52
Zimbabwe	3.51	3.13	49.38
Average	3.92	3.43	16.44

NA = Not available.

countries. In Egypt, for example, the average estimated milk output per native cow is between 578 to 756 kg per lactation (19).

The commercial dairy sector, which comprises a small share of production, is operated both by the government and the private sector. Large state-run farms use specialized management skills which minimize input supply and transportation problems and have substantial economies of scale. However, in most cases, they are faced with high production costs, and require subsidies in order to operate. The high costs stem from shortages of skilled labor, the use of highly capital-intensive technologies, and reliance on purchased feed rather than pastures.

The smaller commercial units within the private sector are more efficient and could increase their output significantly if sufficient production incentives were in place (24, 25, 26). The limited available information about the performance of small dairy producers in the region provides encouraging signs for production growth. One example of a successful smallholder dairy program is in Kenya (26). The Kenyan dairy development program includes a marketing system based on a cooperative structure, the provision of technical services, a reform in the pricing policy, a national artificial insemination service, a presence of large high grade herds, and a relatively well developed agricultural infrastructure. Here, parastatals were more successful, not in their production role, but in their work as a service center providing artificial insemination and female stock for distribution. Increased production has led to increased per capita dairy consumption, which stands at 52 kg compared with 25 kg for the region. About 75 percent of the output is accounted for by smallholder farms.

In most countries, poor animal health, with a large number of losses, remains the major problem for the dairy industry. Upgraded animals are more vulnerable to disease than are local breeds. The shortages of veterinary services and the lack of low cost health treatment remain major obstacles. In some countries, limited resources restrict production growth. In Somalia, for example, where the livestock sector is the major component of GNP, the World Bank estimates that the capacity of the range to sustain additional animals was at or near its limit (25). There are also limits to increasing feed supply on the range. Land degradation, resulting from large human and livestock population growth and increased agricultural activities in the areas with marginally higher rainfall and better soils, means that maintaining current production levels will be difficult.

Domestic Policies

The influence of different domestic policies, although not always quantifiable, are expected to have a significant influence on the growth of dairy imports in the region. Two sets of domestic policies affect commodity imports: (1) general economic and trade policies (indirect effect), and (2) specific commodity policies (direct effect) (20).

The economic policies of Sub-Saharan African countries during the last two decades focused on protecting the industrial sector (3). Import substitution policies were employed to stimulate domestic production based on the objective of satisfying domestic demand and eventually exporting.

Industrialization was thought to be the engine of growth and thereby the key to transforming traditional economies. Agriculture was perceived as playing a secondary role, as provider of raw materials for agri-industry, and as a source of tax revenues to support other development activities. To achieve these goals, regulations to control prices, restrict trade, and allocate foreign exchange were instituted. The low priority given to agriculture encouraged labor and capital to flow into the urban areas. And, in order to satisfy the growing urban demands, government intervention in the food sector grew.

Although the degree of government intervention has varied by commodity and country, producer prices for most basic foodstuffs have been legally controlled (16). In recent years, the trend is toward less intervention. The major criteria used for the determination of producer prices include the following, often conflicting, basic elements: cost of production, fair return to producers, fair price to consumers, import-export parity price, crop profitability, food security, and political acceptability. The relative weights accorded these criteria by the governments vary through time, but a fair price to consumers and political acceptability held great importance in most countries.

Government policies in milk deficit countries were frequently oriented toward maintaining low milk prices for consumers, thereby discouraging domestic production and encouraging reliance on imports (23). In countries where a commercial food sub-sector exists, such as Zimbabwe, farmers who market their commodity commercially are most affected by government-set prices and regulations on production and marketing. This sector is generally more responsive to the price at which the government agrees to purchase all quantities offered for sale. The impact of government policies on traditional farmers (the category most dairy producers fall under) is smaller because they market most of their output through informal channels. Therefore, the effective price at which they sell can vary from the government set price. To improve the productivity of the traditional producers, current research puts more emphasis on nonprice factors such as efficiency of the marketing system, and effectiveness of government-sponsored research and extension and credit.

Because of the generally small and highly variable marketed volumes of milk by traditional producers, dairy imports have become a more reliable source of supply. Import dependent milk processing plants have received government supported price subsidies and investment. Tariffs, although varying by country and commodity, did not reduce imports. Overvaluation of exchange rates in most countries has contributed to the subsidization of imports. Members of the urban population, middle and upper

income, who are primary consumers of imported dairy products, were influential in setting government policies supporting dairy imports.

Domestic policies were not the only reason for the sharp rise in dairy imports. Protection and subsidy policies at the international level also influenced import demand. Extensive domestic producer support programs in countries such as the EC and the United States (producers' subsidy equivalant in the range of 30 to 70 percent of the value of production during 1982-87) led to an increase in surplus milk production. With an excess supply of dairy products, these imports have been relatively cheap.

Contribution of Selected Factors to Import Growth

In an assessment of the forces influencing dairy import growth, an analysis of the impact of factors affecting dairy supply and demand is essential. Among the factors affecting milk supply are input prices, producer prices, prices of competing commodities, choice of technology, and weather. Factors shaping demand include population, income, commodity prices, and prices of substitute products. An analysis of dairy market behavior is not possible with currently available data, and because dairy products are not homogeneous. Another complication is the subsistence nature of the dairy industry in Sub-Saharan Africa. The response of subsistence producers to economic signals is expected to be different from that of commercial producers, but there is little research available to assess this proposition.

To measure the contribution of supply and demand growth, as well as the impact of consumer policies on import growth, we used a commodity balance identity, similar to V.H. von Massow's approach. The only difference is that food aid is added as a separate source of supply. It was assumed that in a given time period, commercial imports are the residual of demand, domestic supply, food aid, and stock changes. This yields the following relationship:

$$M_t = C_t + S_t - Q_t - FA_t - S_{t-1} \qquad (1)$$

Where M_t is net commercial imports, Q_t is domestic production, FA_t is food aid, S_{t-1} is beginning stocks, C_t is consumption, and S_t is ending stocks. Changes in stocks are assumed to be small because of the short shelf-life of dairy products. The one period changes in the variables, weighted by total consumption in the base year, are derived as follows:

$$M/C * dM/M = dC/C - Q/C * dQ/Q - FA/C * dFA/FA \qquad (2)$$

Equation 2 indicates that the relative change (between two periods) in imports are equal to relative change in total consumption, minus relative change in production and relative change in food aid (for simplicity, subscripts are omitted).

The change in total consumption (C) is specified as a function of population growth (P), per capita income growth (Y), and all other policies affecting consumption (z). Substituting these factors for consumption growth, one can write equation (2) as follows:

$$dM/M = C/M\ (dP/P + e * dY/Y + z - Q/C * dQ/Q - FA/C * dFA/FA) \quad (3)$$

where e is the income elasticity of demand for dairy products. The population elasticity is assumed to be one. The sign of z could be positive or negative depending on government consumption policies. Reorganizing equation 3 in terms of z and substituting commercial import share (CMS) for M/C yields the following equation:

$$z = (M/C * dM/M) - dP/P - (e * dY/Y) + (Q/C * dQ/Q) + (FA/C * dFA/FA) \quad (4)$$

From equation 4, the residual proportion of import growth that cannot be explained by growth in population, income, production, and food aid can be derived as follows:

$$z^* = C/M * z \quad (5)$$

Table 4 summarizes the residual import growth rates, z^*, and those of other variables for the period 1977-88. All calculations are based on average annual changes between the average of 1977-79 and 1986-88. To measure the impact of income growth on demand, we used an income elasticity of 0.68 (FAO estimate of income elasticity for dairy products for the region in the mid-1970s) for all countries. The actual income elasticity for individual countries is expected to vary from this average, but the range is probably small because of the narrow range of per capita income levels. The positive sign of z^* indicates that other factors including government policies were responsible for encouraging dairy imports.

The results support the proposition that policies stimulate commercial imports in the region. The residual z^* was positive in 27 of the 39 countries, indicating that in addition to population, income, production, and food aid growth, other factors including government policies influenced the growth in commercial dairy imports. Kenya and Zimbabwe were excluded as they became importers of dairy products after 1980 and most of their imports were supplied through aid.

In 10 countries, the impacts of other factors including policies were negative. One explanation for this import pattern is limited foreign exchange availability. Most of these countries have been faced with severe financial difficulties since the early 1980s and the impacts of financial constraints are expected to be greater on countries with high import dependency. Countries with negative residuals of import growth and high import dependencies were Cape Verde, Ghana, Zaire, and Mauritius (the range in import dependencies was from 75 to 90 percent). In the less import dependent countries of Nigeria, Sierra Leone,

Table 4--Effects of policy and other factors on import growth, average 1977-79 and 1986-88

Country	Per capita income growth	Population growth	Commercial import growth	Residual of import growth
		Percent per year		
West:				
Benin	2.70	3.2	16.72	3.8
Burkina Faso	1.00	2.6	10.75	.6
Cameroon	8.20	3.2	3.56	1.4
Cape Verde	4.50	2.2	-1.39	-0.9
Chad	-1.20	2.3	14.90	0
Cote d'Ivoire	-3.20	4.2	4.19	.3
Gabon	.06	4.3	.90	0
Gambia	-4.40	3.3	16.27	4.4
Ghana	1.20	3.4	-8.17	-1.9
Guinea	.08	2.4	12.48	1.6
Guinea-Bissau	1.80	1.7	8.39	.5
Liberia	-2.10	3.3	1.38	.4
Mali	-1.40	2.4	2.73	.2
Mauritania	1.60	2.7	2.74	2.1
Niger	-2.80	3.0	13.22	1.8
Nigeria	1.65	3.4	-12.30	-2.8
Senegal	-.06	2.9	6.40	2.0
Sierra Leone	4.90	2.4	-4.38	-.5
Togo	-3.70	3.4	-21.04	.7
East:				
Burundi	6.60	2.8	15.92	-6.0
Ethiopia	2.20	2.4	24.18	1.9
Kenya	.01	4.1	NA	7.8
Rwanda	5.30	3.3	33.40	6.6
Somalia	.03	2.9	-16.85	1.9
Sudan	-2.50	3.1	48.35	4.9
Tanzania	3.90	3.5	-30.42	0
Uganda	-3.20	3.1	14.82	.3
Zaire	-10.10	3.1	8.18	-1.5
South:				
Angola	2.00	2.5	1.33	.7
Botswana	8.70	3.4	2.95	1.7
Comoros	4.70	3.6	14.81	3.9
Congo	9.30	3.3	10.30	1.8
Lesotho	3.90	2.7	22.30	5.7
Madagascar	-.09	3.3	-7.76	-.3
Malawi	1.30	3.8	7.77	-.4
Mauritius	1.20	1.0	4.16	-.3
Mozambique	-6.50	2.7	-.52	1.5
Zambia	-4.90	3.6	-23.66	-4.0
Zimbabwe	2.50	3.7	NA	5.1

NA = not applicable.

Burundi, Madagascar, Malawi, and Zambia, policy adjustments, in particular exchange rate adjustments, aimed at curbing consumption due to severe financial pressures were the likely reasons for restrictive import policies.

A test of the significance of the impacts of international prices and exchange rate policies on growth in the volume of commercial dairy imports was performed. A simple model was constructed, regressing growth in imports against real world prices for dairy products and a variable called distortion in exchange rates (DEXR). DEXR is the ratio of an adjusted exchange rate to an official exchange rate. The official exchange rate is the number of units of domestic currency per U.S. dollar. The adjusted exchange rate is calculated by adjusting the official exchange rate in the base period (1978) by the index of a real effective exchange rate (the nominal exchange rate adjusted by the ratio of the domestic price level to the average price level of the trading partners). This adjusted rate represents the real exchange rate if the base period exchange rate is in equilibrium. However, distortions in exchange rates did exist in the base period, with varying degrees depending upon the country. Regardless of the degrees of distortions in the base period, however, the ratio of adjusted exchange rate and official rate (DEXR) shows the direction of overvaluation of the official rate. A DEXR of more than one indicates that exchange rate overvaluation has increased, while a DEXR of less than one indicates a correction in overvaluation.

The expected dairy import relationship with DEXR is positive, meaning that an increase in overvaluation leads to an increase in imports. The expected relationship between commercial dairy imports and real dairy import prices (Netherlands dried skim milk divided by the U.S. CPI) is negative. The regression estimation method is OLS and the period of coverage is from 1978 to 1988. The short study period is due to insufficient data both for commercial imports and the index of real effective exchange rates.

The estimated results are shown in table 5. The explanatory power of the exchange rate distortions and real world prices ranged from 7 percent in Togo to 56 percent in Benin. This means in addition to distortions in exchange rate policies, and changes in the world market prices, other factors were responsible for changes in commercial imports. In all countries, DEXR and commercial dairy imports had the expected positive relationship. The coefficient of DEXR, however, was statistically significant in 15 countries (significant at 1- to 10-percent levels). These results indicate that further exchange rate adjustments in the region will lead to a decline in commercial dairy imports.

The policy of exchange rate adjustment which has been adopted by most countries since the early 1980s is expected to continue although details of devaluation vary considerably. According to available reports, this policy has revitalized exports and improved production of import substitute commodities, including food, in many countries (8, 27).

Table 5--Impact of exchange rate policy and import price on commercial imports in Sub-Saharan Africa

Country	Constant	Exchange rate bias	Real dairy import price	R^2
West:				
Benin	-0.02	0.13*	-0.01*	0.56
Burkina Faso	-.08	.11*	-.07	.32
Cameroon	.11	1.14*	-.09*	.40
Cape Verde	.13	.28	-.03*	.32
Chad	.12	.37*	-3.83	.39
Cote d'Ivoire	-.71	3.25*	-.23	.50
Gabon	-.05	.43	-.03	.12
Gambia	-1.12	1.22	.01	.12
Ghana	9.23	1.07	-.76*	.32
Guinea	3.59	7.49	-.83*	.28
Guinea-Bissau	.12	.05	-.01*	.37
Liberia	-1.39	3.36	-.83	.08
Mali	-.82	1.68	-.08	.23
Mauritania	.91	.17	-.07	.03
Niger	1.91	5.21	-.56*	.27
Nigeria	-.23	1.74*	-.11	.47
Senegal	.74	1.50	-.19*	.30
Sierra Leone	-.11	.50	.05	.19
Togo	-.12	.28	-.09	.07
East:				
Burundi	-2.87	3.34	.05	.11
Ethiopia	-.12	.25*	-1.11	.31
Kenya	NA	NA	NA	NA
Rwanda	-.49	.70*	-.01	.34
Somalia	-.08	.02	-.01	.05
Sudan	NA	NA	NA	NA
Tanzania	.17	.03	-.01	.09
Uganda	.26	.06	-.03*	.25
Zaire	1.32	3.10*	-.18	.33
South:				
Angola	NA	NA	NA	NA
Botswana	-.01	.06*	-.01*	.33
Comoros	1.24	1.46	-.20*	.29
Congo	.32	1.60*	-.14*	.37
Lesotho	1.99	1.78*	.56	.30
Madagascar	1.33	2.56*	-.32*	.39
Malawi	.02	2.95*	-.20*	.43
Mauritius	.39	1.32*	-.13*	.39
Mozambique	.35	.06	-.03	.16
Zambia	.09	.08*	-.01*	.35
Zimbabwe	NA	NA	NA	NA

NA = Not applicable.
* denotes significance at 10-percent level.

The relationship between dairy imports and real import prices was negative in all countries except Togo and Lesotho. The coefficients of world prices were statistically significant in 16 countries (at the 1- to 10-percent levels). This means that policy changes in the exporting countries and an increase in world price will lead to a reduction in commercial imports by the region. Among the sub-regions, southern countries were most responsive to both price and distortion in exchange rates (both variables were statistically significant in 6 of the 10 countries).

The short period of the data, however, does not allow for the capture of the long-term relationship between variables which can affect the estimated results. Further research should provide a better understanding of the import response to changes in policies.

Expected Welfare Effects of Dairy Import Policies

In theory, in order to evaluate the domestic welfare effect of import policies, the concept of consumer and producer surplus is used (10). Consumer surplus is based on the assumption that there is a demand for a commodity which responds negatively to a price increase. The notion of producer surplus follows from neoclassical production theory. A firm's shortrun supply function is its marginal cost curve, above the minimum average variable cost. Assuming no input price effects, the horizontal sum of individual firms is the market supply function. The area under the industry's marginal cost, or supply, is the total variable cost. The area above the supply function and below the price is producer surplus or rent (producers will receive the same price for all previous units). With a positive supply function, increases in prices lead to increases in producer surplus and vice versa. The producer surplus takes into account the extra costs to the producers associated with responding to higher prices.

The consumer and producer welfare effects of dairy imports depend on the magnitude of price changes, price elasticities of demand and supply, and government policies. The decision on policies are in general made at the national level, but nations are connected internationally by trade which both constrains and expands the scope of national action. Therefore, to measure the impact of imports on the domestic economy, an analysis of policies of both importing and exporting countries is essential. The evaluation of overall food policies in most African countries indicates that policies were aimed at protecting consumers (23). The import policies aimed at keeping consumer prices at low levels fall into the following categories: (1) direct dairy import or consumer price subsidy, (2) exchange rate overvaluation, and (3) food aid imports. In the international market, the export policies of exporting countries have a direct impact on world prices, and hence on the import levels of importing countries.

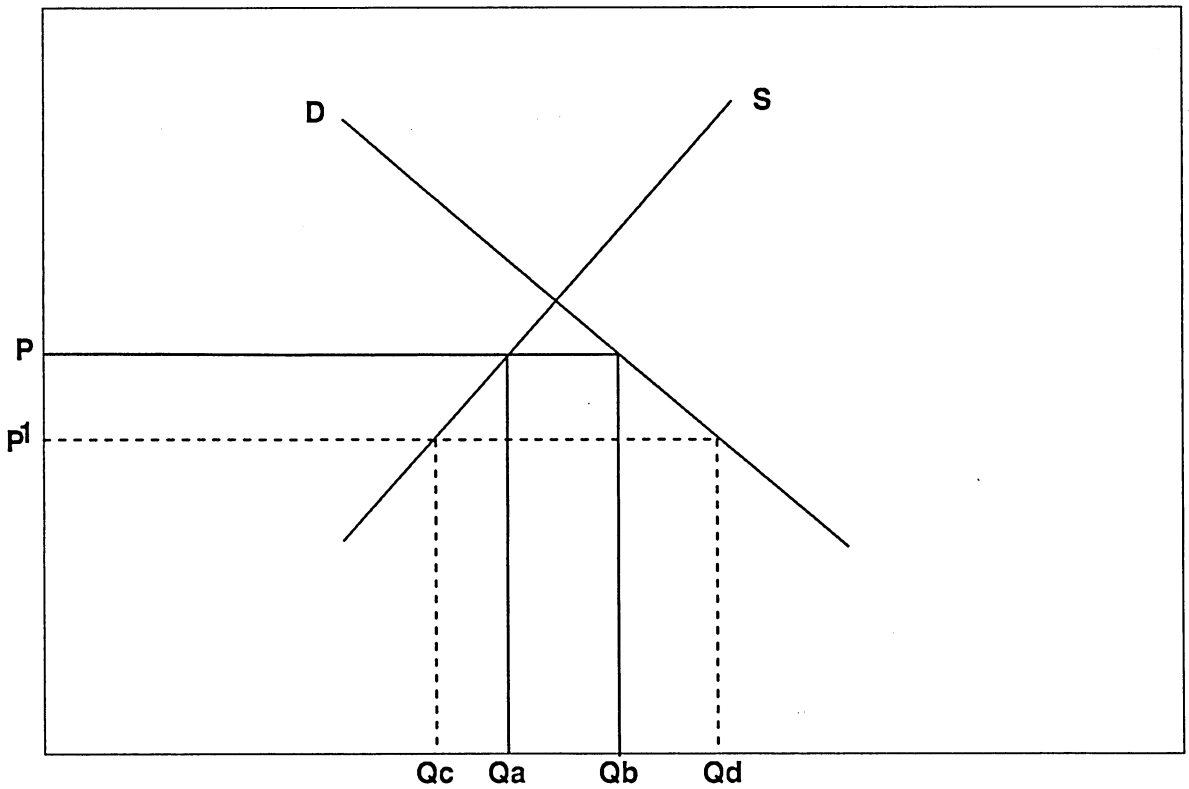
Import and Consumer Price Subsidy

The single commodity impact of a direct import subsidy policy is shown in figure 6. Import subsidies cause domestic consumer and producer prices to be lower than world prices. As a result, the domestic output of dairy products declines (from Q_a to Q_c), the amount consumed rises (from Q_b to Q_d), and imports are larger than they would be if the subsidies had not existed (from Q_aQ_b to Q_cQ_d). The government uses budget resources to reduce the price of dairy imports which thereby increases the consumers surplus. In the short term, assuming all other factors remain constant, when consumers gain, producers lose because production, sales, and profits are lower than without intervention. In effect, producers are forced to transfer income to consumers.

In Sub-Saharan Africa, urban consumers are the primary beneficiaries of the subsidy policies (23). With a substantial portion of dairy products directed to the urban areas, a new pattern of dairy consumption, especially among the middle and higher income groups, was promoted. It has been argued that the consumer subsidy policies were the impetus behind the increasing rate of migration to the urban areas (3). In Sub-Saharan Africa, the proportion of urban population nearly doubled during the last 20 years from 14 percent in 1967 to 27 percent in 1987. The annual rural migration rate is about 7 percent. This means that a subsidy policy aimed at satisfying the growing urban population

Figure 6

Impact of Import and Consumer Price Subsidy



will result in soaring budget costs in the future. In the case of African dairy policies, consumer subsidy policies have often led to subsidization of the dairy processing industry. The processing industry relies heavily on imported milk because of the high variability in domestically marketed quantities, a result of frequent drought and/or poor marketing infrastructure.

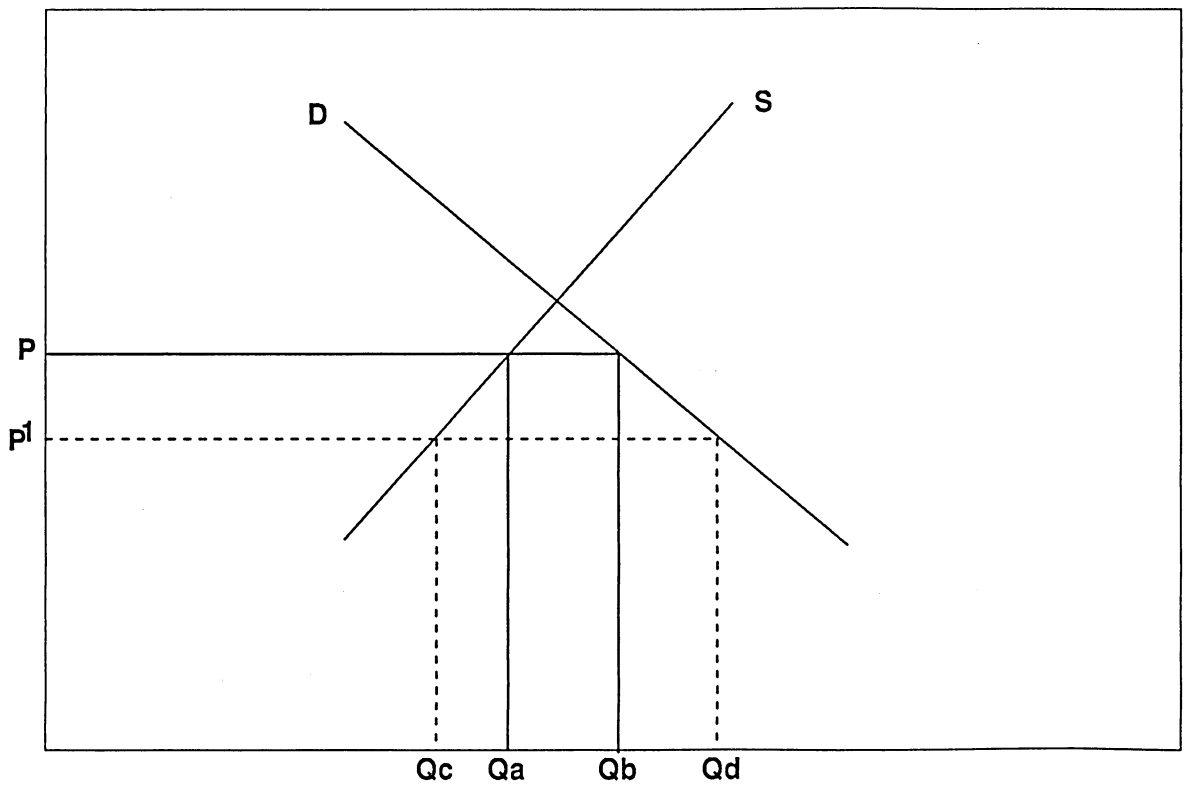
On the producer side, the long-term consumer subsidy policy and low producer prices have reduced the pace of commercialization of the dairy sector. Commercialization of the subsistence agricultural sector is the cornerstone of development. Commercialization is expected to improve the distribution of incentives and benefits by providing growth linkages with other sectors of the economy. In Africa, since most dairy producers are small farmers, the economic gains from commercialization are expected to improve the welfare of a large portion of the rural population.

Exchange Rate Policy

The impact of exchange rate overvaluation is similar to that of the import subsidy. An overvalued exchange rate means a reduction in the domestic price of imported commodities. The low imported price reduces the domestic price level, from P (world price) to P^1, as shown in figure 7. Overvaluation does not have a direct impact on budget expenditures for the government but the

Figure 7

Impact of Overvalued Exchange Rate



rest of the economy is forced to pay the costs. Overvaluation of the exchange rate is the primary cause of the trade imbalance and the poor agricultural performance of the region. With the exception of CFA (franc zone) countries, official exchange rates were fixed at the nominal level until the early 1980s. Governments relied on import restrictions rather than devaluation to conserve foreign exchange. Import priority was given to essential commodities such as food, raw materials, and capital goods. The overvaluation, when combined with direct consumer subsidy policies, has had a strong depressing impact on producers' incentives and welfare.

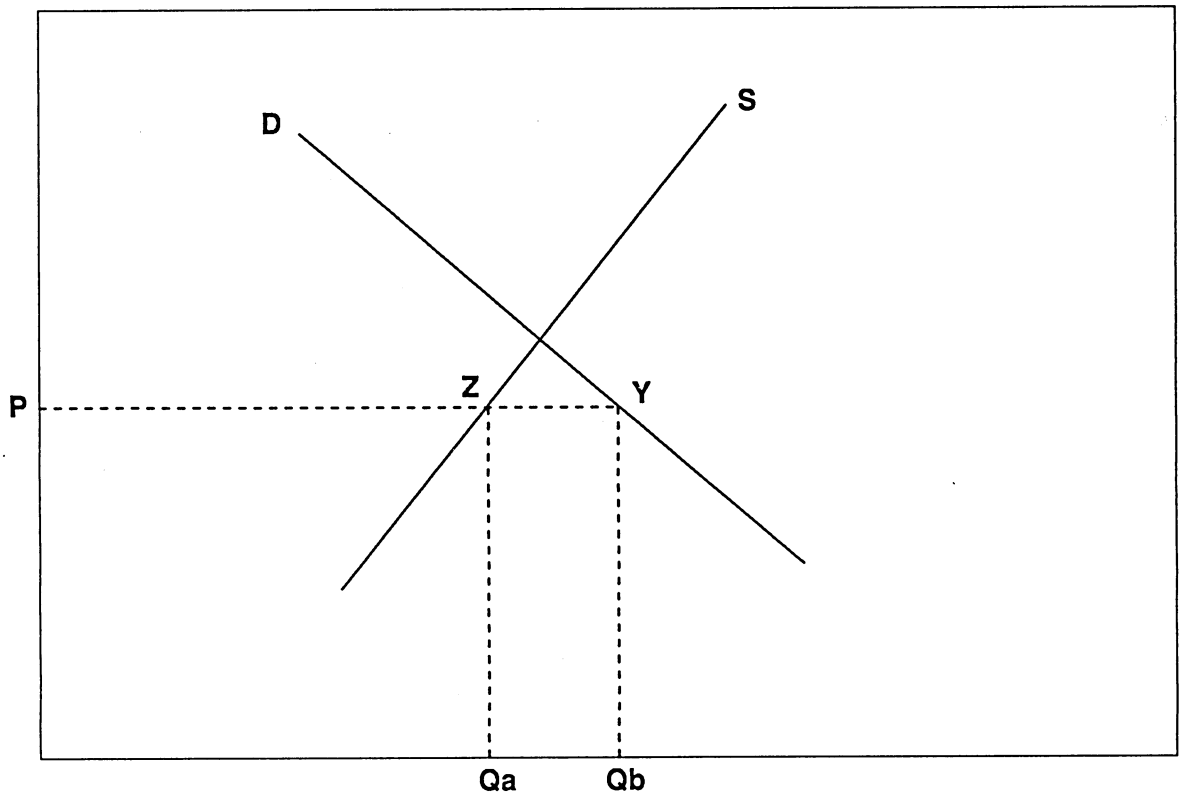
Food Aid

The impact of food aid varies depending on government policies. If food aid is sold at less than the import price, the effect on consumer and producer welfare is similar to that of an import subsidy policy. It leads to consumer gains and producer losses, with no change in the government budget. The extent to which food aid supplements commercial imports is not clear and varies depending upon the policies of the recipients. Most studies of individual countries found that nonemergency food aid displaces commercial imports at rates ranging from 30 to 90 percent (12).

If food aid is used to displace commercial imports and is sold at the world price, there is no change in consumer or producer

Figure 8

Food Aid Displacing Commercial Imports

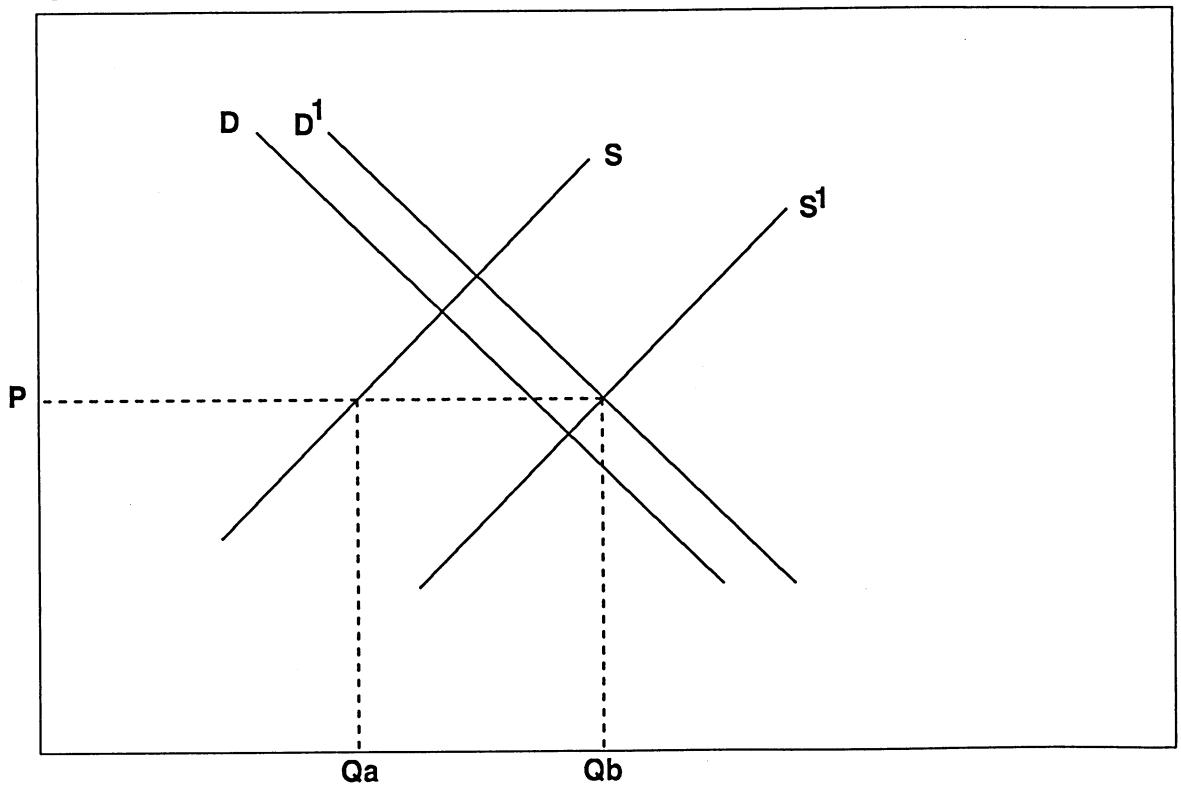


welfare (fig. 8). The country's financial gain, area YZQ_aQ_b, is equal to the value of food aid at the international market price. The local currencies generated through the commercial sale of food aid, similar to any financial aid, can be invested to improve the performance of the local dairy industry. In 1989, under the U.S. food aid program Titles I and III, 25 agreements were reached with developing countries that mandated the use of local currencies generated from sales of food aid for improving production and marketing of food products (7).

The impact of targeted food aid, where it is distributed in the country in a way that creates new demand rather than substituting for or competing with the existing demand, is a gain to consumers, but with almost no change in producer welfare. In this case, in addition to supply shift from S to S', income generated food aid shifts the demand curve from D to D' (fig. 9). The consumer welfare gain is the area between the two demand curves which is above the price P. The benefit of targeting food aid is the reduction of food insecurity without removing producers' incentives, at least in the short term (14). An example of targeted food aid is the "food for work" scheme. A discussion of the limitations of this type of program is beyond the scope of this study, but one point which can be made is that providing subsidized dairy products to lower income groups encourages consumption patterns that entail a long-term import

Figure 9

Impact of Targeted Food Aid



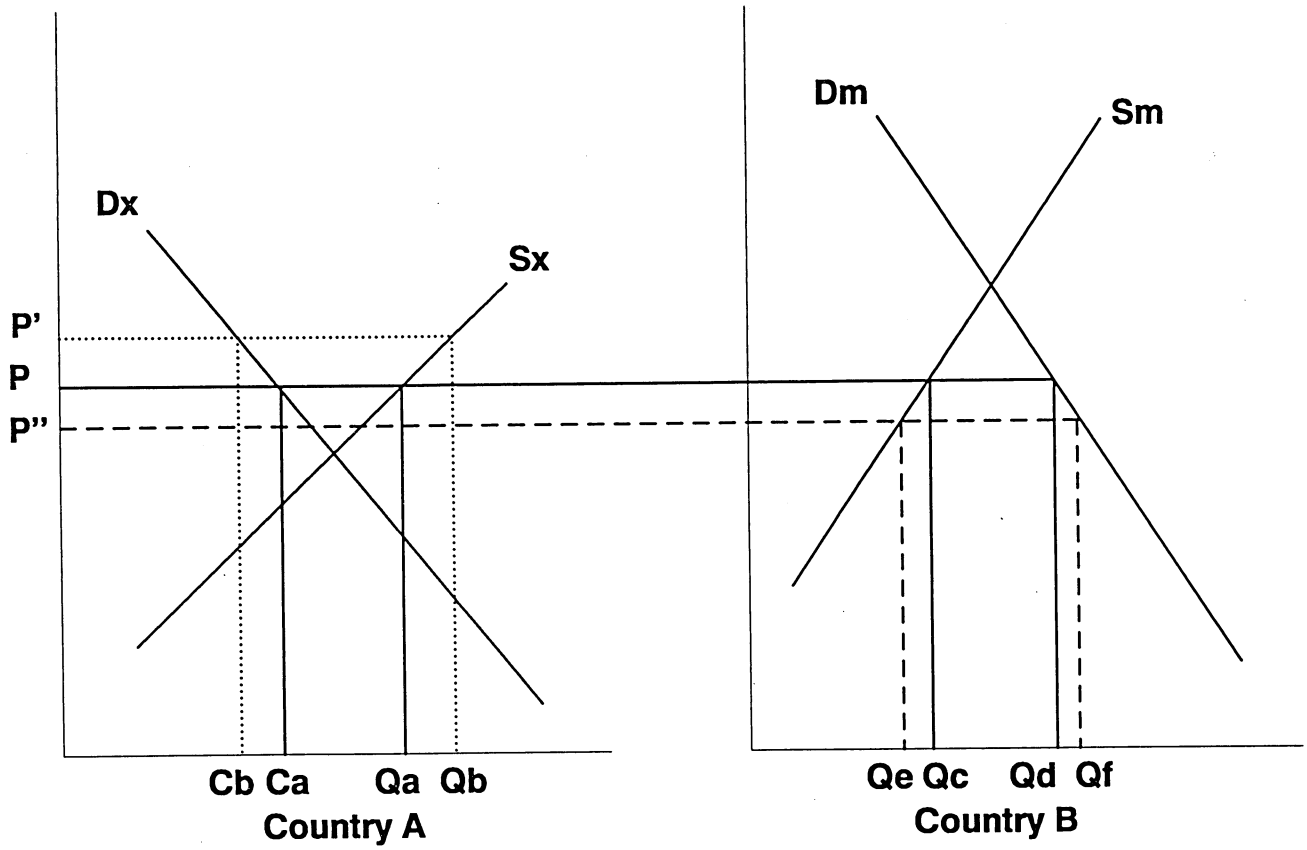
dependency. One option for using both food aid and encouraging local employment is "cash for work" which is financed by sales of food aid. This type of program can be used to support public projects, especially in the areas of road and other infrastructure construction. Markets for livestock and dairy products are generally constrained by the lack of infrastructure. Any improvement in market infrastructure has both the potential to improve marketing channels and to promote food security.

International Market

Governments of the dairy exporting countries have extensive programs to support their producers (1). These interventions tend to alter conditions in the world markets as seen by other countries. The world price impact of commodity support policies is shown in figure 10. Without these price supports, the price established in the international market is "P", consumption in country A is OC_a, and production is OQ_a. Country B imports are Q_cQ_d. Suppose country A establishes a price support program at P', above P. At P', the export quantity is C_bQ_b. The excess export quantity will reduce the world price to P" and the unit export subsidy is P'P". The support and export subsidy programs

Figure 10

Export-Import Effects of Export Subsidy Policy



in country A raise the price, reduce consumption, and increase exports. The effects of lower international prices in country B are reduced production, and increased consumption and imports (assuming no market intervention by country B).

The major exporting countries have employed a variety of policies to protect their industries. These policies include direct producer subsidies, direct income payments, border measures to influence exports and imports, and supply management.

Any movement toward liberalization of the dairy market will have significant implications on trade because only 5 percent of total dairy production enters the international market. The countries that will be most affected by dairy trade liberalization are Australia, Canada, the United States, EC, Japan, New Zealand, and non-Western Europe (1). Most of the trade in dairy products is concentrated among the industrialized countries, with developing countries being a major importer of only nonfat dry milk. Estimation of the dairy price impact from trade liberalization varies depending upon the structure of the model and the time frame. The estimated range of price increases is from 30 to 95 percent (1). The increase in world prices is much less than the subsidies paid to the producers of the exporting countries and is expected to reduce surplus milk production in these countries. The implication of trade liberalization on the volume of trade is not clear. While some studies show increases in international traded volume, they fail to address the impact of removing high export subsidies which have shaped historical trade patterns. Removing export subsidies, direct subsidies, and dairy aid, if not replaced by increases in commercial trade at international prices, will lead to a decline in traded volume.

The GATT negotiations are reaching their final stages and the outcome is uncertain. Among various proposals considered, a group of net food importing less developed countries suggested that concessional sales and financial grants could be used to offset the impact of higher world food prices for essential commodities. The proposal by the United States recognizes the need to continue food aid programs to help developing countries and suggests establishing a committee to periodically review the required level of food aid. The proposal also gives an expanded role to multilateral and private voluntary organizations for distribution of food aid.

As for African countries, with their growing import dependencies, higher international dairy prices mean a reduction in the volume of commercial imports and probably higher import costs. The changes in food aid distribution policies, however, could be positive for the region. If the political considerations of food aid distribution policies are replaced by a "needs" criteria, the Sub-Saharan share might increase.

Welfare implications for the consumer are expected to vary by country depending upon the level of price increases, food aid volume, and domestic production performance. In any event, increases in international dairy prices, if transferred to the

domestic market (assuming food aid is used to shift domestic demand), mean a reduction in consumer surplus. On the other hand, if an increase in international prices is passed on to the producers, incentives for production will increase, and for some countries, export earnings will rise.

Conclusions

During the 1980s, providing adequate food supplies became an increasingly severe problem. Sub-Saharan Africa became characterized by declining average per capita food production and high year to year variability. Although food import dependency increased, per capita consumption stagnated or even, in the case of some countries, declined.

Between 1961 and 1988, Sub-Saharan Africa's dairy imports increased nearly sixfold, growing at an annual rate of 6.5 percent. Import growth has slowed since the mid-1970s as production performance improved. Import dependency (imports as a percentage of consumption) averaged 17 percent during 1977-88.

The growth in food imports, including dairy imports, and the subsequent costs, is disturbing for most policymakers in Sub-Saharan countries. The need to conserve foreign exchange is put forward as a main reason for adopting food self-sufficiency policies and curbing imports. Over the years, different policies, such as foreign exchange control, import licensing, and import tariffs, have been adopted in order to reduce imports. The implementation of these policies was not seriously pursued. The contradicting policies such as currency overvaluation and declining import prices reduced the visible costs of imports. This, combined with slow production growth and escalated demand pressures, precluded the governments' enforcement of import restrictions.

With income and population rising, particularly in urban areas, demand for dairy products is expected to grow and dairy will become a more important part of the diet. Using the historical trend in population and projected income growth (per capita income growth in the range of 1 to 2 percent), along with the average income elasticity for dairy products, yields a 4- to 5-percent annual growth in dairy demand until the year 2000.

Delivering this quantity increase will be difficult. Even with a significant increase in public investment, production expansion will be limited in most countries, particularly if they depend on imported feed. The average annual growth in gross investment for the region was -7.3 percent during 1980-88 compared with -2.1 percent for all low-income countries, excluding India and China. Short-term strategies such as increasing the size of herds will not necessarily lead to production improvements because of shortages in feed availability. Long-term production expansion requires increases in investment and improvements in the collection of information on the size and system of dairy operations in these countries. If a country does not have a

comparative advantage in dairy production, it can earn more foreign exchange by diverting resources from dairy production into areas in which it has a comparative advantage. The recent adjustments in the dairy program in the United States are a good example of the long-term policies to promote production and the consequences: budgetary pressures and growing costs, which forced a reduction in subsidies.

Growing demand for dairy products and limited availability of resources mean that achieving self-sufficiency in dairy products in most of the Sub-Saharan countries is almost impossible, certainly in the short term and probably in the long term as well. Recent policy directions, which advocate the curtailment of imports and the conservation of foreign exchange, place considerable pressure to limit commercial imports. Consequently, the dairy self-sufficiency policy will be successful only if countries are willing to accept continued low levels of dairy consumption.

The share of dairy products in the diet is low, on the average less than 5 percent of total per capita calorie intake (table 6). The region's nutritional status, while varying by country, is on average poor; caloric consumption is 15 percent less than the average for low-income developing countries. Because of this, any decline in the availability of essential foods such as dairy products, if not replaced by an equally nutritious food item, can be detrimental.

The study found that the food aid contribution to dairy consumption in Sub-Saharan countries has grown rapidly. The food aid share of total imports increased from 21 percent in 1977 to 83 percent in 1987. Surplus dairy output in the largest exporting countries is expected to continue and to play a role in the food aid picture (figs. 11 and 12). The Sub-Saharan food aid share can grow, from 10 to 30 percent of total dairy aid during 1977-88, if the distribution policies of donors are shifted more toward needy countries. Food aid, if used effectively, can improve nutritional levels, as well as the financial situations of these countries without having a major disincentive on production. Monetization of dairy aid, through sales in the recipient countries, will not interfere with the functioning of local markets. The funds generated from sales could be used to improve market infrastructure and productivity of the dairy sector. It is, therefore, the responsibility of the recipient countries to use food aid effectively as an investment tool and in support of long-term improvements in food security.

Table 6--Per capita consumption growth, role of dairy in diet, and nutritional status in Sub-Saharan Africa

Country	Per capita consumption growth 1977-86	Contribution of dairy in the diet	Calorie intake as percentage of LIC's 1/
		Percent	
West:			
Benin	2.20	0.46	0.86
Burkina Faso	-1.26	1.37	.87
Cameroon	-.08	.65	.82
Cape Verde	-4.64	2.51	1.10
Chad	-.37	2.67	.70
Cote d'Ivoire	.30	1.88	1.04
Gabon	-1.73	NA	1.02
Gambia	7.02	1.64	.91
Ghana	-4.68	.28	.71
Guinea	.11	.85	.72
Guinea-Bissau	-1.66	NA	NA
Liberia	2.32	.70	.97
Mali	-1.96	2.27	.84
Mauritania	3.08	15.86	.94
Niger	.39	2.85	.99
Nigeria	-8.68	.88	.87
Senegal	-.59	2.13	.95
Sierra Leone	-3.29	1.03	.75
Togo	6.93	.24	.90
East:			
Burundi	-5.11	1.23	.95
Ethiopia	.49	1.96	.71
Kenya	-5.45	5.12	.84
Rwanda	6.06	.79	.74
Somalia	-3.77	16.72	.87
Sudan	3.86	5.62	.90
Tanzania	-2.07	2.15	.89
Uganda	-1.96	2.52	.95
Zaire	.69	.14	.88
South:			
Angola	2.45	1.91	.76
Botswana	.86	8.89	.89
Comoros	4.88	.99	.90
Congo	8.60	.78	.99
Lesotho	2.92	2.19	.94
Madagascar	1.41	.36	.99
Malawi	-1.03	.59	.94
Mauritius	.15	6.18	1.12
Mozambique	.69	.74	.65
Zambia	-5.47	.89	.87
Zimbabwe	2.24	1.55	.87

NA = Not available.
1/ LICs stands for low-income countries. The average calorie consumption for the low-income countries was 2,463 in 1986.
Source: Food and Agriculture Organization of the United Nations.

Figure 11

Sub-Saharan Receipts of Nonfat Dry Milk Aid

1000 mt

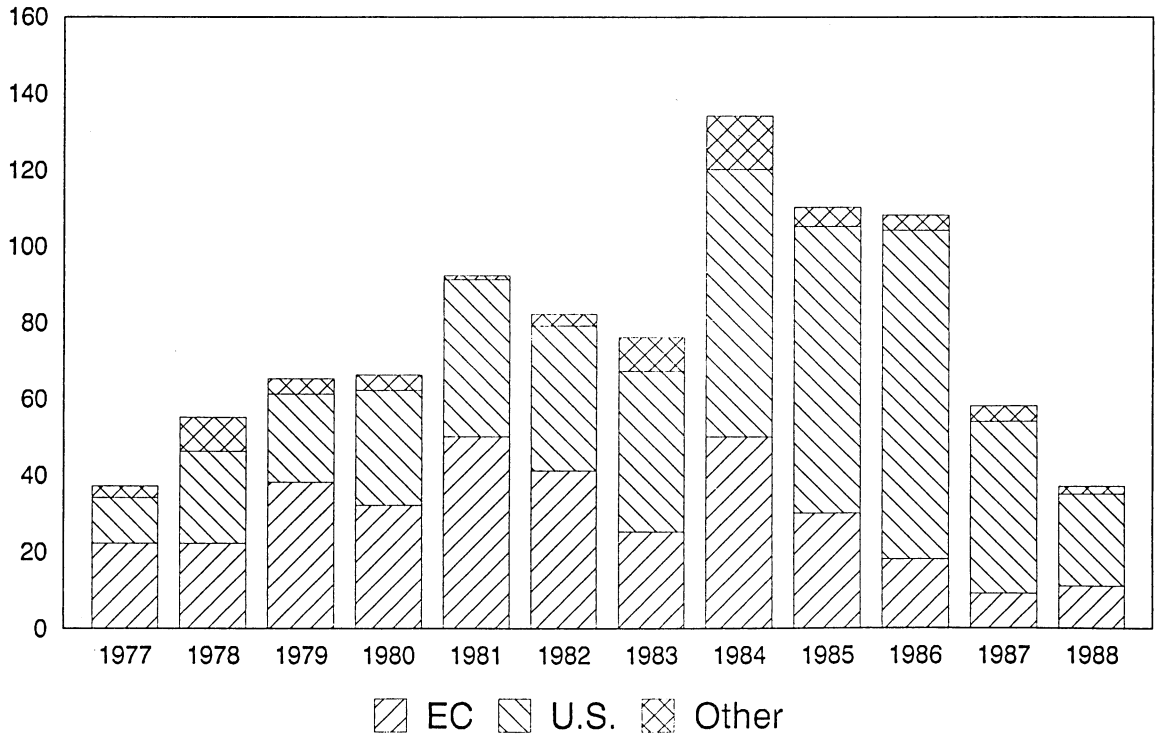
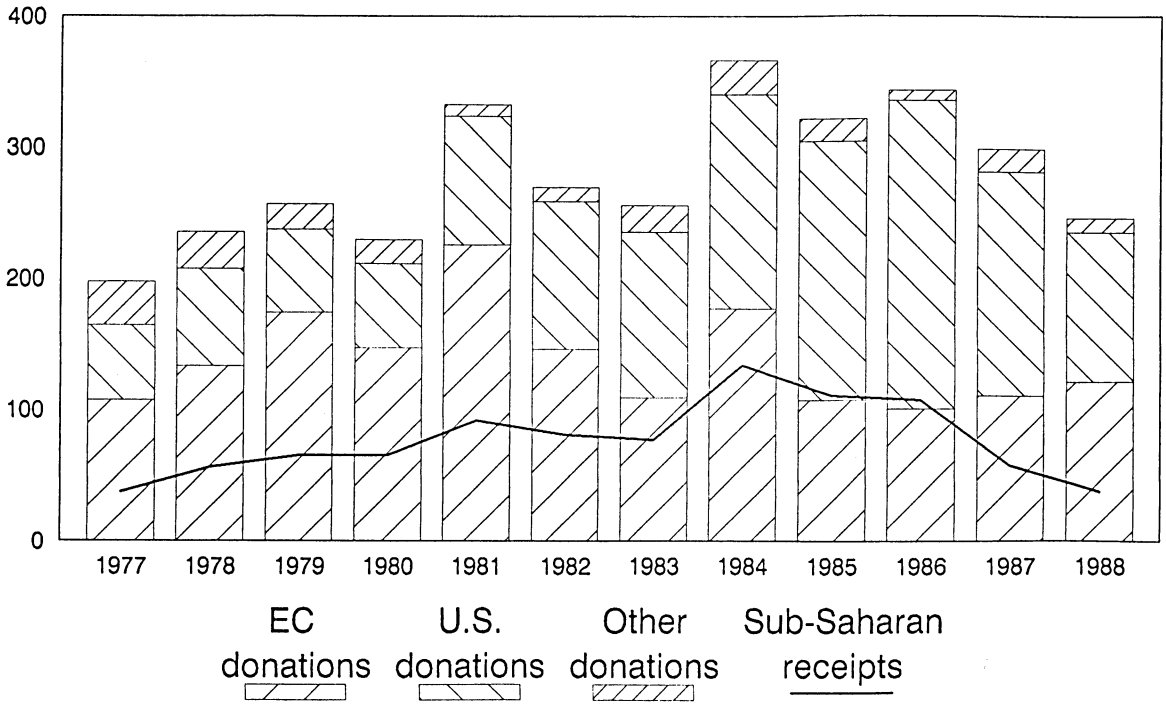


Figure 12

Nonfat Dry Milk Aid: Total and to Sub-Sahara

1000 tons



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Appendix table 1--Benin: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	7,020	970	NA	970	0	7,990
1962	7,401	1,090	NA	1,090	0	8,491
1963	7,874	1,073	NA	1,073	0	8,947
1964	8,556	1,019	NA	1,019	0	9,575
1965	9,585	1,050	NA	1,050	0	10,635
1966	10,457	1,284	NA	1,284	0	11,741
1967	10,709	1,312	NA	1,312	0	12,021
1968	10,878	1,763	NA	1,763	0	12,641
1969	11,382	1,492	NA	1,492	0	12,874
1970	11,222	1,926	NA	1,926	0	13,148
1971	11,200	2,264	NA	2,264	0	13,464
1972	11,690	1,926	NA	1,926	0	13,616
1973	11,910	2,393	NA	2,393	0	14,303
1974	13,465	3,238	NA	3,238	0	16,703
1975	14,895	1,815	NA	1,815	0	16,710
1976	15,020	3,198	NA	3,198	0	18,218
1977	14,422	2,830	760	2,070	0	17,252
1978	15,685	4,188	1,560	2,628	6	19,867
1979	16,005	2,953	1,560	1,393	1	18,957
1980	17,297	6,837	3,040	3,797	4	24,130
1981	17,724	6,265	800	5,465	0	23,989
1982	18,116	10,409	800	9,609	258	28,267
1983	18,555	11,641	800	10,841	0	30,196
1984	20,055	9,505	0	9,505	28	29,532
1985	20,120	4,508	0	4,508	0	24,628
1986	20,600	6,893	0	6,893	0	27,493
1987	19,700	14,036	0	14,036	0	33,736
1988	20,200	6,510	0	6,510	0	26,710

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 2--Burkina Faso: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	65,100	2,458	NA	2,458	0	67,558
1962	66,400	2,109	NA	2,109	0	68,509
1963	66,700	2,685	NA	2,685	0	69,385
1964	72,000	3,029	NA	3,029	0	75,029
1965	83,600	2,190	NA	2,190	0	85,790
1966	84,600	2,679	NA	2,679	0	87,279
1967	86,600	2,094	NA	2,094	0	88,694
1968	87,740	1,858	NA	1,858	0	89,598
1969	90,200	3,034	NA	3,034	0	93,234
1970	92,400	3,163	NA	3,163	0	95,563
1971	89,620	3,232	NA	3,232	0	92,852
1972	79,640	4,161	NA	4,161	18	83,783
1973	74,200	3,799	NA	3,799	0	77,999
1974	77,900	11,263	NA	11,263	16	89,147
1975	80,200	6,643	NA	6,643	0	86,843
1976	81,400	21,659	NA	21,659	0	103,059
1977	83,660	31,600	28,680	2,920	6	115,254
1978	85,780	87,481	61,360	26,121	21	173,240
1979	88,100	55,750	53,720	2,030	0	143,850
1980	89,360	82,593	59,840	22,753	0	171,953
1981	90,870	78,260	72,520	5,740	0	169,130
1982	92,680	49,569	37,040	12,529	64	142,185
1983	94,540	52,464	38,760	13,704	109	146,895
1984	96,570	54,038	45,600	8,438	62	150,546
1985	97,700	54,879	47,920	6,959	8	152,571
1986	103,600	73,077	49,400	23,677	0	176,677
1987	94,200	67,213	41,040	26,173	4	161,409
1988	96,300	53,916	22,040	31,876	0	150,216

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 3--Cameroon: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	23,200	4,546	NA	4,546	0	27,746
1962	23,250	4,659	NA	4,659	0	27,909
1963	24,600	4,346	NA	4,346	0	28,946
1964	21,250	4,632	NA	4,632	0	25,882
1965	23,100	6,129	NA	6,129	0	29,229
1966	25,050	5,712	NA	5,712	0	30,762
1967	24,600	12,406	NA	12,406	0	37,006
1968	25,250	19,579	NA	19,579	0	44,829
1969	27,950	16,203	NA	16,203	0	44,153
1970	30,900	25,244	NA	25,244	0	56,144
1971	33,250	24,358	NA	24,358	0	57,608
1972	30,900	15,622	NA	15,622	0	46,522
1973	30,900	18,929	NA	18,929	0	49,829
1974	31,900	23,753	NA	23,753	0	55,653
1975	34,600	17,818	NA	17,818	0	52,418
1976	36,600	19,083	NA	19,083	0	55,683
1977	38,800	25,058	579	24,479	0	63,858
1978	40,000	28,832	929	27,903	5	68,827
1979	41,250	33,261	564	32,697	7	74,504
1980	42,550	38,815	1,303	37,512	103	81,262
1981	43,000	39,088	1,116	37,972	78	82,010
1982	44,000	34,923	1,006	33,917	84	78,839
1983	45,000	32,167	629	31,538	0	77,167
1984	46,000	30,384	198	30,186	571	75,813
1985	46,500	32,436	115	32,321	278	78,659
1986	47,500	44,652	211	44,441	80	92,072
1987	48,000	38,474	247	38,227	317	86,157
1988	48,600	36,958	41	36,917	81	85,478

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 4--Cape Verde: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	1,510	632	NA	632	0	2,142
1962	1,510	670	NA	670	0	2,180
1963	1,680	728	NA	728	0	2,408
1964	1,630	763	NA	763	0	2,393
1965	1,700	726	NA	726	0	2,426
1966	1,700	595	NA	595	0	2,295
1967	1,700	775	NA	775	0	2,475
1968	1,820	777	NA	777	0	2,597
1969	1,820	1,544	NA	1,544	0	3,364
1970	1,890	1,728	NA	1,728	0	3,618
1971	1,860	5,038	NA	5,038	0	6,898
1972	1,960	3,880	NA	3,880	0	5,840
1973	1,910	1,846	NA	1,846	0	3,756
1974	1,860	2,263	NA	2,263	0	4,123
1975	1,760	8,419	NA	8,419	0	10,179
1976	1,810	7,519	NA	7,519	0	9,329
1977	1,880	12,496	9,120	3,376	0	14,376
1978	1,930	28,226	15,400	12,826	0	30,156
1979	2,000	5,937	3,800	2,137	0	7,937
1980	1,950	7,244	5,440	1,804	0	9,194
1981	2,000	14,689	7,760	6,929	0	16,689
1982	1,930	12,313	4,560	7,753	0	14,243
1983	1,824	15,658	14,600	1,058	0	17,482
1984	1,800	17,547	17,460	87	0	19,347
1985	1,900	9,240	9,120	120	0	11,140
1986	2,000	12,171	10,120	2,051	0	14,171
1987	2,000	13,687	4,800	8,887	0	15,687
1988	2,100	14,605	9,360	5,245	0	16,705

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 5--Chad: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	140,610	1,074	NA	1,074	0	141,684
1962	142,230	1,421	NA	1,421	0	143,651
1963	144,650	2,552	NA	2,552	0	147,202
1964	146,270	1,597	NA	1,597	0	147,867
1965	147,890	1,332	NA	1,332	0	149,222
1966	151,400	1,676	NA	1,676	0	153,076
1967	153,670	2,095	NA	2,095	0	155,765
1968	156,310	1,524	NA	1,524	0	157,834
1969	153,300	2,413	NA	2,413	0	155,713
1970	155,125	2,059	NA	2,059	0	157,184
1971	155,900	2,520	NA	2,520	0	158,420
1972	163,650	1,787	NA	1,787	0	165,437
1973	150,150	19,937	NA	19,937	0	170,087
1974	147,925	5,835	NA	5,835	0	153,760
1975	146,150	7,446	NA	7,446	0	153,596
1976	140,775	4,064	NA	4,064	0	144,839
1977	141,508	2,544	2,220	324	0	144,052
1978	145,475	980	560	420	0	146,455
1979	149,350	6,256	5,880	376	0	155,606
1980	156,100	1,068	840	228	0	157,168
1981	159,800	1,288	1,020	268	0	161,088
1982	163,900	10,760	6,840	3,920	0	174,660
1983	163,900	37,593	10,680	26,913	0	201,493
1984	137,600	8,694	8,520	174	0	146,294
1985	139,500	57,088	55,080	2,008	0	196,588
1986	141,800	956	120	836	0	142,756
1987	144,200	4,045	800	3,245	0	148,245
1988	147,800	7,462	7,260	202	0	155,262

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 6--Cote d'Ivoire: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	5,500	12,932	NA	12,932	0	18,432
1962	5,700	9,753	NA	9,753	0	15,453
1963	5,800	12,161	NA	12,161	0	17,961
1964	6,000	14,086	NA	14,086	76	20,010
1965	6,000	16,213	NA	16,213	94	22,119
1966	6,000	18,200	NA	18,200	250	23,950
1967	6,500	20,652	NA	20,652	166	26,986
1968	7,000	23,739	NA	23,739	518	30,221
1969	7,200	27,240	NA	27,240	442	33,998
1970	7,300	35,021	NA	35,021	586	41,735
1971	7,500	34,764	NA	34,764	400	41,864
1972	8,000	31,449	NA	31,449	1,241	38,208
1973	8,000	45,144	NA	45,144	1,655	51,489
1974	8,000	56,966	NA	56,966	3,205	61,761
1975	8,500	41,063	NA	41,063	199	49,364
1976	9,000	74,120	NA	74,120	766	82,354
1977	9,500	138,180	0	138,180	1,180	146,500
1978	10,000	118,241	0	118,241	874	127,367
1979	11,000	121,366	0	121,366	1,711	130,655
1980	11,700	143,171	0	143,171	2,997	151,874
1981	12,200	149,363	0	149,363	2,757	158,806
1982	13,400	120,074	0	120,074	2,243	131,231
1983	14,000	124,128	0	124,128	1,511	136,617
1984	15,300	114,767	0	114,767	35	130,032
1985	16,300	154,663	0	154,663	1,963	169,000
1986	17,200	175,270	0	175,270	0	192,470
1987	17,900	192,710	0	192,710	1,292	209,318
1988	18,700	182,900	0	182,900	0	201,600

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 7--Gabon: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	105	2,403	NA	2,403	0	2,508
1962	124	2,018	NA	2,018	0	2,142
1963	105	3,073	NA	3,073	0	3,178
1964	113	2,973	NA	2,973	0	3,086
1965	135	2,982	NA	2,982	0	3,117
1966	150	3,302	NA	3,302	0	3,452
1967	150	3,534	NA	3,534	0	3,684
1968	150	3,772	NA	3,772	0	3,922
1969	154	4,933	NA	4,933	0	5,087
1970	161	4,956	NA	4,956	0	5,117
1971	165	4,975	NA	4,975	0	5,140
1972	169	6,259	NA	6,259	0	6,428
1973	173	5,133	NA	5,133	0	5,306
1974	175	8,520	NA	8,520	0	8,695
1975	125	13,981	NA	13,981	0	14,106
1976	150	13,655	NA	13,655	0	13,805
1977	155	16,650	0	16,650	0	16,805
1978	160	21,868	0	21,868	0	22,028
1979	200	13,772	0	13,772	0	13,972
1980	235	17,413	0	17,413	0	17,648
1981	270	17,450	0	17,450	0	17,720
1982	320	18,261	0	18,261	0	18,581
1983	370	17,848	0	17,848	0	18,218
1984	400	21,394	0	21,394	0	21,794
1985	460	23,636	0	23,636	0	24,096
1986	500	17,660	0	17,660	0	18,160
1987	600	20,220	0	20,220	0	20,820
1988	600	18,808	0	18,808	0	19,408

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 8--Gambia: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	2,625	1,594	NA	1,594	0	4,219
1962	2,810	1,747	NA	1,747	0	4,557
1963	3,185	1,210	NA	1,210	0	4,395
1964	3,290	839	NA	839	0	4,129
1965	3,412	627	NA	627	0	4,039
1966	3,500	1,308	NA	1,308	0	4,808
1967	3,628	1,347	NA	1,347	0	4,975
1968	3,872	1,960	NA	1,960	0	5,832
1969	4,072	1,561	NA	1,561	0	5,633
1970	4,352	2,528	NA	2,528	0	6,880
1971	4,550	1,908	NA	1,908	0	6,458
1972	4,725	1,102	NA	1,102	0	5,827
1973	4,812	1,524	NA	1,524	0	6,336
1974	4,900	2,600	NA	2,600	0	7,500
1975	4,987	2,378	NA	2,378	0	7,365
1976	5,040	3,301	NA	3,301	0	8,341
1977	5,075	2,992	760	2,232	0	8,067
1978	5,092	4,260	3,600	660	0	9,352
1979	5,110	4,860	2,520	2,340	0	9,970
1980	5,127	3,320	0	3,320	0	8,447
1981	5,162	12,104	8,360	3,744	0	17,266
1982	5,197	9,240	6,120	3,120	0	14,437
1983	5,250	13,098	7,600	5,498	0	18,348
1984	4,900	10,560	7,600	2,960	0	15,460
1985	5,075	10,180	6,840	3,340	0	24,255
1986	5,200	11,600	7,600	4,000	0	16,800
1987	5,300	12,840	6,080	6,760	0	18,140
1988	5,300	13,380	1,520	11,860	0	18,680

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 9--Ghana: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	4,125	37,476	NA	37,476	40	41,561
1962	4,537	38,401	NA	38,401	80	42,858
1963	4,950	32,882	NA	32,882	100	37,732
1964	5,775	34,411	NA	34,411	80	40,106
1965	6,187	55,507	NA	55,507	0	61,694
1966	6,187	51,555	NA	51,555	0	57,742
1967	6,600	50,189	NA	50,189	0	56,789
1968	7,012	56,506	NA	56,506	0	63,518
1969	7,425	57,185	NA	57,185	0	64,610
1970	7,450	58,168	NA	58,168	0	65,618
1971	7,450	77,294	NA	77,294	0	84,744
1972	7,697	50,225	NA	50,225	0	57,922
1973	7,936	52,385	NA	52,385	0	60,321
1974	8,745	58,283	NA	58,283	0	67,028
1975	7,425	39,757	NA	39,757	0	47,182
1976	6,820	82,092	NA	82,092	0	88,912
1977	6,270	56,589	11,400	45,189	0	62,859
1978	6,160	48,383	22,120	26,263	0	54,543
1979	6,435	24,895	22,320	2,575	0	31,330
1980	6,600	17,251	16,680	571	0	23,851
1981	6,820	4,874	3,640	1,234	0	11,694
1982	7,645	8,848	8,040	808	0	16,493
1983	8,250	36,307	29,560	6,747	0	44,557
1984	8,910	47,451	46,480	971	0	56,361
1985	9,300	33,488	24,800	8,688	0	42,788
1986	9,400	27,118	19,000	8,118	0	36,518
1987	9,600	30,774	20,720	10,054	0	40,374
1988	9,400	29,594	12,280	17,314	0	38,994

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 10--Guinea: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	31,295	2,000	NA	2,000	0	33,295
1962	32,155	2,000	NA	2,000	0	34,155
1963	33,220	2,000	NA	2,000	0	35,220
1964	34,225	2,000	NA	2,000	0	36,225
1965	35,290	2,000	NA	2,000	0	37,290
1966	36,335	2,000	NA	2,000	0	38,335
1967	35,115	2,000	NA	2,000	0	37,115
1968	35,115	2,000	NA	2,000	0	37,115
1969	33,865	2,400	NA	2,400	0	36,265
1970	33,905	2,200	NA	2,200	0	36,105
1971	33,805	3,000	NA	3,000	0	36,805
1972	34,165	3,600	NA	3,600	0	37,765
1973	36,065	3,000	NA	3,000	0	39,065
1974	37,380	4,000	NA	4,000	0	41,380
1975	38,610	2,000	NA	2,000	0	40,610
1976	40,160	3,000	NA	3,000	0	43,160
1977	41,340	6,800	2,760	4,040	0	48,140
1978	42,490	6,800	4,520	2,280	0	49,290
1979	43,680	5,824	2,000	3,824	0	49,504
1980	45,260	4,455	2,360	2,095	0	49,715
1981	46,265	2,289	2,160	129	0	48,554
1982	47,475	1,830	960	870	0	49,305
1983	48,807	5,890	760	5,130	0	54,697
1984	47,695	8,810	760	8,050	0	56,505
1985	46,685	15,600	8,360	7,240	0	62,285
1986	46,700	9,120	0	9,120	0	55,820
1987	46,700	18,520	9,200	9,320	0	65,220
1988	46,700	12,740	0	12,740	0	59,440

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 11--Guinea-Bissau: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	7,670	1,408	NA	1,408	0	9,078
1962	7,670	1,484	NA	1,484	0	9,154
1963	7,670	1,636	NA	1,636	0	9,306
1964	7,670	1,560	NA	1,560	0	9,230
1965	7,670	1,636	NA	1,636	0	9,306
1966	7,840	1,912	NA	1,912	0	9,752
1967	8,010	2,230	NA	2,230	0	10,240
1968	8,095	2,636	NA	2,636	0	10,731
1969	8,265	3,142	NA	3,142	0	11,407
1970	8,520	4,037	NA	4,037	0	12,557
1971	8,795	3,952	NA	3,952	0	12,747
1972	9,200	3,279	NA	3,279	0	12,479
1973	9,435	2,728	NA	2,728	0	12,163
1974	9,670	1,926	NA	1,926	0	11,596
1975	9,945	3,220	NA	3,220	760	12,405
1976	10,245	5,002	NA	5,002	0	15,247
1977	10,545	5,762	5,050	712	0	16,307
1978	10,885	4,837	3,740	1,097	0	15,722
1979	11,160	5,280	3,260	2,020	0	16,440
1980	11,460	2,143	1,880	263	0	13,603
1981	11,695	1,566	1,510	56	0	13,261
1982	12,015	2,151	2,140	11	0	14,166
1983	12,335	2,271	2,180	91	0	14,606
1984	12,545	2,017	1,970	47	0	14,562
1985	12,780	2,265	1,760	505	0	15,045
1986	13,149	5,803	3,840	1,963	0	18,952
1987	13,400	5,500	3,080	2,420	0	18,900
1988	13,400	3,140	760	2,380	0	16,540

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 12--Liberia: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	1,380	7,081	NA	7,081	0	8,461
1962	1,447	6,629	NA	6,629	0	8,076
1963	1,515	5,159	NA	5,159	0	6,674
1964	1,582	4,434	NA	4,434	0	6,016
1965	1,650	6,050	NA	6,050	0	7,700
1966	1,717	6,001	NA	6,001	0	7,718
1967	1,785	11,834	NA	11,834	0	13,619
1968	1,852	6,494	NA	6,494	0	8,346
1969	1,906	5,241	NA	5,241	0	7,147
1970	1,965	6,089	NA	6,089	0	8,054
1971	2,052	9,184	NA	9,184	0	11,236
1972	2,115	6,760	NA	6,760	0	8,875
1973	2,182	10,766	NA	10,766	0	12,948
1974	2,243	8,765	NA	8,765	0	11,008
1975	2,304	7,771	NA	7,771	0	10,075
1976	2,372	9,007	NA	9,007	0	11,379
1977	2,430	11,846	760	11,086	0	14,276
1978	2,506	11,233	5,320	5,913	0	13,739
1979	2,565	14,510	1,520	12,990	3	17,072
1980	2,685	17,282	3,040	14,242	45	19,922
1981	2,805	13,106	1,520	11,586	2	15,909
1982	2,910	11,973	1,520	10,453	0	14,883
1983	3,074	19,580	760	18,820	0	22,654
1984	3,091	24,579	0	24,579	312	27,358
1985	3,111	20,931	0	20,931	0	24,042
1986	3,100	20,130	0	20,130	0	23,230
1987	3,100	7,640	0	7,640	0	10,740
1988	3,100	6,180	0	6,180	0	9,280

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 13--Mali: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	115,500	1,648	NA	1,648	0	117,148
1962	122,625	1,858	NA	1,858	0	124,483
1963	127,900	1,780	NA	1,780	0	129,680
1964	138,200	1,558	NA	1,558	0	139,758
1965	150,300	1,549	NA	1,549	0	151,849
1966	151,900	2,348	NA	2,348	0	154,248
1967	156,800	1,317	NA	1,317	0	158,117
1968	155,250	592	NA	592	0	155,842
1969	169,350	764	NA	764	0	170,114
1970	167,950	2,258	NA	2,258	0	170,208
1971	171,200	5,084	NA	5,084	0	176,284
1972	146,400	7,226	NA	7,226	0	153,626
1973	130,500	18,663	NA	18,663	0	149,163
1974	119,500	30,036	NA	30,036	2	149,534
1975	130,050	32,492	NA	32,492	0	162,542
1976	139,350	29,619	NA	29,619	10	168,959
1977	143,900	25,218	6,880	18,338	23	169,095
1978	154,500	18,228	12,920	5,308	23	172,705
1979	164,950	11,228	7,640	3,588	0	176,178
1980	188,750	17,148	8,160	8,988	0	205,898
1981	195,750	11,933	8,720	1,213	0	207,683
1982	201,200	12,411	8,440	3,971	0	213,611
1983	175,200	12,516	9,960	2,556	0	187,716
1984	155,200	23,371	11,520	11,851	0	178,571
1985	140,900	21,364	15,440	5,924	193	162,071
1986	146,300	35,050	24,400	10,650	195	181,155
1987	149,700	19,480	6,920	12,560	0	169,180
1988	155,300	34,950	3,040	31,910	0	190,250

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 14--Mauritania: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	199,925	3,006	NA	3,006	0	202,931
1962	204,800	4,092	NA	4,092	0	208,892
1963	209,315	1,525	NA	1,525	0	210,840
1964	213,640	1,099	NA	1,099	0	214,739
1965	219,315	1,644	NA	1,644	0	220,959
1966	226,215	1,112	NA	1,112	0	227,327
1967	230,190	1,677	NA	1,677	0	231,867
1968	236,565	1,838	NA	1,838	0	238,403
1969	240,325	3,620	NA	3,620	0	243,945
1970	243,110	4,749	NA	4,749	0	247,859
1971	233,300	7,280	NA	7,280	0	240,580
1972	224,150	7,848	NA	7,848	0	231,998
1973	191,300	23,550	NA	23,550	0	214,850
1974	172,200	28,120	NA	28,120	0	200,320
1975	182,350	52,192	NA	52,192	0	234,542
1976	203,150	40,128	NA	40,128	0	243,278
1977	213,600	43,600	6,840	36,760	0	257,200
1978	219,400	56,780	20,360	36,420	0	276,180
1979	224,900	36,571	8,360	28,211	0	261,471
1980	228,850	65,300	28,320	36,980	0	294,150
1981	230,600	49,370	23,040	26,330	0	279,970
1982	230,450	56,637	33,840	22,797	0	287,087
1983	233,650	93,203	36,160	57,043	0	326,853
1984	249,300	171,112	50,760	120,352	0	420,412
1985	254,750	175,700	108,080	67,620	0	430,450
1986	257,700	88,100	67,720	20,380	0	345,800
1987	262,600	70,501	11,400	59,101	0	333,101
1988	267,100	61,780	11,560	50,220	0	328,880

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 15--Niger: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	201,400	306	NA	306	0	201,706
1962	207,200	482	NA	482	0	207,682
1963	213,000	339	NA	339	0	213,339
1964	219,000	578	NA	578	0	219,578
1965	225,200	460	NA	460	0	225,660
1966	237,600	589	NA	589	0	238,189
1967	243,500	635	NA	635	0	244,135
1968	247,500	1,138	NA	1,138	0	248,638
1969	244,150	830	NA	830	0	244,980
1970	235,400	1,656	NA	1,656	0	237,056
1971	222,025	2,568	NA	2,568	0	224,593
1972	191,500	2,098	NA	2,098	0	193,598
1973	160,500	28,107	NA	28,107	0	188,607
1974	177,600	8,893	NA	8,893	0	186,493
1975	198,000	15,924	NA	15,924	0	213,924
1976	215,600	16,662	NA	16,662	0	232,262
1977	219,950	9,620	3,040	6,580	0	229,570
1978	232,000	10,577	760	9,817	0	242,577
1979	239,000	14,673	10,640	4,033	80	253,593
1980	242,600	7,481	2,280	5,201	0	250,081
1981	242,794	23,284	5,320	17,964	57	266,020
1982	247,930	13,748	6,080	7,668	0	261,678
1983	252,210	16,974	12,160	4,814	0	269,184
1984	241,000	41,423	12,160	29,263	6	282,417
1985	246,700	62,606	29,400	33,206	0	309,306
1986	252,400	51,325	39,800	11,525	0	303,725
1987	257,400	45,420	9,240	36,180	0	302,820
1988	260,700	28,540	9,120	19,420	0	289,240

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 16--Nigeria: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	212,800	36,119	NA	36,119	0	248,919
1962	247,250	46,998	NA	46,998	0	294,248
1963	249,757	47,381	NA	47,381	0	297,138
1964	274,250	61,285	NA	61,285	0	335,535
1965	277,000	79,018	NA	79,018	0	356,018
1966	279,750	82,702	NA	82,702	0	362,452
1967	316,400	81,182	NA	81,182	0	397,582
1968	313,600	99,932	NA	99,932	0	413,532
1969	310,044	152,840	NA	152,840	0	462,884
1970	313,124	225,466	NA	225,466	0	538,590
1971	316,204	251,818	NA	251,818	0	568,022
1972	277,575	244,668	NA	244,668	0	522,243
1973	273,000	190,139	NA	190,139	0	463,139
1974	283,868	200,283	NA	200,283	0	484,151
1975	297,000	325,250	NA	325,250	0	622,250
1976	316,400	320,109	NA	320,109	0	636,509
1977	316,250	509,872	0	509,872	0	826,122
1978	330,400	673,790	0	673,790	0	1,004,190
1979	342,000	464,838	0	464,838	0	806,838
1980	356,700	675,400	0	675,400	0	1,032,100
1981	362,500	844,127	0	844,127	0	1,206,627
1982	365,400	642,498	0	642,498	0	1,007,898
1983	356,700	522,396	0	522,396	0	879,096
1984	335,820	328,113	0	328,113	0	663,933
1985	350,165	279,988	0	279,988	0	630,153
1986	359,015	163,436	0	163,436	0	522,451
1987	359,900	198,772	0	198,772	0	558,672
1988	359,900	182,880	0	182,880	0	542,780

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 17--Senegal: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	77,299	22,339	NA	22,339	13	99,625
1962	82,226	22,029	NA	22,029	49	104,206
1963	92,499	25,899	NA	25,899	178	118,220
1964	97,499	23,513	NA	23,513	84	120,929
1965	100,062	22,595	NA	22,595	17	122,640
1966	111,592	26,887	NA	26,887	104	138,375
1967	104,453	25,962	NA	25,962	46	130,369
1968	108,165	30,424	NA	30,424	253	138,336
1969	110,210	36,154	NA	36,154	107	146,257
1970	110,610	36,991	NA	36,991	539	147,062
1971	113,370	37,083	NA	37,083	581	149,872
1972	93,000	31,762	NA	31,762	1,838	122,924
1973	87,150	63,454	NA	63,454	3,004	147,600
1974	86,472	52,285	NA	52,285	1,354	137,402
1975	96,399	60,211	NA	60,211	2,308	154,302
1976	101,370	68,544	NA	68,544	1,543	168,370
1977	101,388	120,712	6,160	114,552	1,439	220,661
1978	109,766	103,093	32,320	70,773	7,637	205,222
1979	107,530	93,016	21,120	71,896	2,482	198,063
1980	104,605	87,076	37,680	49,396	66	191,615
1981	99,369	107,692	27,120	80,572	4,104	202,957
1982	102,520	103,390	19,200	84,190	4,360	201,550
1983	103,900	147,236	11,840	135,396	65	251,071
1984	97,500	184,504	79,120	105,384	1,628	280,376
1985	102,200	121,146	41,040	80,106	0	223,346
1986	114,300	150,660	40,280	110,380	0	264,960
1987	117,500	188,291	20,520	167,771	0	305,791
1988	120,300	188,260	8,720	179,540	0	308,560

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 18--Sierra Leone: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	11,550	5,834	NA	5,834	0	17,384
1962	12,250	7,975	NA	7,975	0	20,225
1963	13,125	9,717	NA	9,717	0	22,842
1964	13,650	10,148	NA	10,148	0	23,798
1965	14,000	11,637	NA	11,637	0	25,637
1966	14,595	13,798	NA	13,798	0	28,393
1967	14,875	13,069	NA	13,069	0	27,944
1968	15,050	12,624	NA	12,624	0	27,674
1969	15,260	15,197	NA	15,197	0	30,457
1970	15,540	17,822	NA	17,822	0	33,362
1971	15,750	15,927	NA	15,927	0	31,677
1972	15,960	12,726	NA	12,726	0	28,686
1973	16,205	12,405	NA	12,405	0	28,610
1974	16,485	9,034	NA	9,034	0	25,519
1975	16,695	9,997	NA	9,997	0	26,692
1976	16,975	12,886	NA	12,886	0	29,861
1977	17,220	9,245	800	8,445	0	26,465
1978	17,500	11,281	1,600	9,681	0	28,781
1979	17,850	16,973	6,160	10,813	0	34,823
1980	18,270	27,682	11,600	16,082	0	45,952
1981	18,900	26,893	19,840	7,053	0	45,793
1982	19,670	19,042	12,160	6,882	0	38,712
1983	18,375	9,677	9,520	157	0	28,052
1984	17,325	16,883	16,440	443	0	34,208
1985	17,325	7,261	6,700	561	0	24,586
1986	17,300	8,347	8,260	87	0	25,647
1987	17,300	17,879	7,600	10,279	0	35,179
1988	17,300	12,190	3,040	9,150	0	29,490

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 19--Togo: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	4,207	712	NA	712	0	4,919
1962	4,121	1,549	NA	1,549	0	5,670
1963	4,621	1,514	NA	1,514	0	6,135
1964	4,841	1,608	NA	1,608	0	6,449
1965	4,986	1,265	NA	1,265	0	6,251
1966	4,950	1,502	NA	1,502	0	6,452
1967	5,062	2,141	NA	2,141	0	7,203
1968	5,175	1,140	NA	1,140	0	6,315
1969	5,130	6,217	NA	6,217	0	11,347
1970	5,692	1,755	NA	1,755	0	7,447
1971	5,602	2,769	NA	2,769	0	8,371
1972	5,827	2,912	NA	2,912	0	8,739
1973	6,075	3,138	NA	3,138	0	9,213
1974	6,052	2,443	NA	2,443	4	8,491
1975	6,345	1,299	NA	1,299	22	7,622
1976	6,390	4,077	NA	4,077	20	10,447
1977	6,727	7,219	1,520	5,699	0	13,946
1978	6,615	1,767	1,520	247	0	8,382
1979	6,727	1,280	1,240	40	0	8,007
1980	6,457	3,183	2,560	623	0	9,640
1981	6,952	4,371	4,360	11	0	11,323
1982	7,200	3,862	3,820	42	0	11,062
1983	6,500	4,946	4,440	506	20	11,426
1984	7,200	4,598	4,400	198	0	11,798
1985	6,800	12,088	11,400	688	0	18,888
1986	8,100	6,426	6,000	426	0	14,526
1987	8,600	4,794	4,620	174	0	13,394
1988	8,600	8,916	NA	8,916	41	17,475

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 20--Burundi: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	33,360	NA	NA	NA	0	33,360
1962	33,970	NA	NA	NA	0	33,970
1963	34,580	NA	NA	NA	0	34,580
1964	35,560	NA	NA	NA	0	35,560
1965	37,010	NA	NA	NA	0	37,010
1966	38,850	NA	NA	NA	0	38,850
1967	40,600	NA	NA	NA	0	40,600
1968	42,280	NA	NA	NA	0	42,280
1969	44,040	NA	NA	NA	0	44,040
1970	45,520	NA	NA	NA	0	45,520
1971	46,380	NA	NA	NA	0	46,380
1972	48,620	NA	NA	NA	0	48,620
1973	50,980	NA	NA	NA	0	50,980
1974	51,570	3,508	NA	3,508	0	55,078
1975	53,050	3,553	NA	3,553	0	56,603
1976	52,680	4,152	NA	4,152	0	56,832
1977	53,030	5,320	3,080	2,240	0	58,350
1978	53,196	6,840	5,400	1,440	0	60,036
1979	54,658	8,360	7,440	920	0	63,018
1980	42,244	11,856	10,080	1,776	0	54,100
1981	33,982	11,240	10,160	1,080	0	45,222
1982	32,219	18,992	14,200	4,792	0	51,211
1983	32,395	11,309	6,840	4,469	0	43,704
1984	31,999	25,278	23,560	1,718	0	57,277
1985	32,675	20,003	9,880	10,123	0	52,678
1986	31,800	11,149	3,800	7,349	0	42,949
1987	30,600	4,803	760	4,043	0	35,403
1988	30,200	8,641	760	7,881	0	38,841

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 21--Ethiopia: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	637,275	8,864	NA	8,864	1,313	644,826
1962	642,215	10,329	NA	10,329	404	652,140
1963	647,155	9,390	NA	9,390	1,327	655,218
1964	651,180	10,629	NA	10,629	924	660,885
1965	668,625	21,359	NA	21,359	1,005	688,979
1966	680,740	20,670	NA	20,670	726	700,684
1967	693,565	35,547	NA	35,547	923	728,189
1968	704,565	19,740	NA	19,740	90	724,215
1969	718,155	21,446	NA	21,446	58	739,543
1970	733,200	25,682	NA	25,682	393	758,490
1971	748,580	24,774	NA	24,774	428	772,926
1972	761,360	16,128	NA	16,128	753	776,736
1973	756,000	13,443	NA	13,443	1,332	768,111
1974	740,900	19,495	NA	19,495	2,378	758,017
1975	771,600	10,905	NA	10,905	368	782,137
1976	761,280	17,113	NA	17,113	7	778,386
1977	776,100	6,746	6,320	426	207	782,640
1978	786,930	31,281	30,440	841	0	818,211
1979	798,070	64,845	58,800	6,045	13	862,902
1980	809,040	29,603	28,520	1,083	231	838,412
1981	820,070	75,648	73,840	1,808	33	895,685
1982	825,975	53,621	48,400	5,221	26	879,570
1983	825,700	45,101	42,000	3,101	165	870,636
1984	820,410	66,586	65,440	1,146	26	886,969
1985	927,400	251,181	249,840	1,341	13	1,178,568
1986	1,005,800	221,524	218,760	2,764	0	1,227,324
1987	833,400	75,724	38,000	37,724	0	909,124
1988	836,800	114,404	90,440	23,964	0	951,204

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 22--Kenya: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	743,400	10,500	NA	10,500	38,008	715,892
1962	773,810	27,776	NA	27,776	46,886	754,700
1963	739,800	9,659	NA	9,659	47,882	701,577
1964	780,260	9,432	NA	9,432	46,102	743,589
1965	810,000	8,440	NA	8,440	44,794	773,646
1966	854,200	20,810	NA	20,810	44,943	830,067
1967	807,470	15,708	NA	15,708	42,561	780,617
1968	856,000	10,967	NA	10,967	24,931	842,036
1969	877,570	13,564	NA	13,564	40,378	850,756
1970	892,917	13,496	NA	13,496	49,560	856,852
1971	971,900	18,593	NA	18,593	38,137	952,356
1972	1,020,800	21,059	NA	21,059	83,939	957,920
1973	969,000	2,361	NA	2,361	94,594	876,766
1974	933,500	1,505	NA	1,505	67,735	867,270
1975	996,300	15,861	NA	15,861	48,818	963,343
1976	968,200	4,566	NA	4,566	20,207	952,559
1977	1,022,200	4,746	3,880	866	11,506	1,015,440
1978	1,054,849	1,992	1,860	132	25,822	1,031,020
1979	1,143,705	4,384	4,380	4	52,603	1,095,486
1980	1,013,800	91,639	25,080	66,559	2,170	1,103,269
1981	990,800	83,393	63,440	19,953	4,375	1,069,818
1982	1,217,089	31,817	29,000	2,817	5,996	1,242,910
1983	1,379,400	34,451	29,640	4,811	8,035	1,405,815
1984	1,464,300	84,649	84,240	409	3,015	1,545,934
1985	1,512,100	37,553	14,600	22,953	2,600	1,547,053
1986	1,871,500	11,484	800	10,684	4,077	1,878,907
1987	2,185,800	4,142	1,560	2,582	8,529	2,181,413
1988	2,384,500	623	NA	623	15,968	2,369,155

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 23--Rwanda: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption 2/
			tons			
1961	23,060	NA	NA	NA	0	23,060
1962	21,744	NA	NA	NA	0	21,744
1963	23,360	NA	NA	NA	0	23,360
1964	23,510	NA	NA	NA	0	23,510
1965	23,619	NA	NA	NA	0	23,619
1966	25,308	NA	NA	NA	0	25,308
1967	27,052	NA	NA	NA	0	27,052
1968	27,432	NA	NA	NA	0	27,432
1969	29,296	NA	NA	NA	0	29,296
1970	35,250	NA	NA	NA	0	35,250
1971	31,612	350	NA	350	0	31,962
1972	29,576	474	NA	474	0	30,050
1973	33,036	1,798	NA	1,798	0	34,834
1974	30,784	314	NA	314	0	31,098
1975	28,342	1,082	NA	1,082	0	29,424
1976	38,200	1,460	NA	1,460	0	39,660
1977	49,000	2,988	9	2,979	0	51,988
1978	59,180	11,605	5	11,601	0	70,785
1979	59,760	3,147	14	3,134	0	62,907
1980	78,260	8,439	14	8,425	0	86,699
1981	76,480	9,155	21	9,135	20	85,615
1982	83,100	10,344	17	10,326	0	93,444
1983	79,720	9,651	16	9,635	0	89,371
1984	83,140	36,337	40	36,297	0	119,477
1985	89,000	41,200	26	41,174	0	130,200
1986	92,400	38,516	33	38,483	0	130,916
1987	98,900	27,864	15	27,849	0	126,764
1988	97,000	12,333	4	12,329	0	109,333

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
2/ Consumption equals production when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 24--Somalia: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	1,157,500	590	NA	590	1,459	1,156,631
1962	1,201,500	1,019	NA	1,019	1,294	1,201,225
1963	1,259,500	445	NA	445	931	1,259,014
1964	1,319,700	1,261	NA	1,261	99	1,320,862
1965	1,371,100	1,441	NA	1,441	152	1,372,389
1966	1,426,900	648	NA	648	132	1,427,416
1967	1,498,000	629	NA	629	1,175	1,497,455
1968	1,561,800	561	NA	561	0	1,562,361
1969	1,596,400	869	NA	869	165	1,597,104
1970	1,636,900	1,632	NA	1,632	554	1,637,977
1971	1,618,000	2,910	NA	2,910	178	1,620,731
1972	1,662,500	2,238	NA	2,238	172	1,664,566
1973	1,624,600	1,132	NA	1,132	317	1,625,415
1974	1,602,000	605	NA	605	356	1,602,249
1975	1,703,600	9,156	NA	9,156	211	1,712,545
1976	1,784,200	22,194	NA	22,194	304	1,806,091
1977	1,816,200	51,761	29,640	22,121	172	1,867,790
1978	1,837,800	177,045	33,280	143,765	370	2,014,475
1979	1,813,800	184,459	47,720	136,739	442	1,997,817
1980	1,852,100	124,938	110,560	14,378	27	1,977,010
1981	1,920,400	101,419	98,280	3,139	7	2,021,812
1982	1,965,400	113,372	111,720	1,652	0	2,078,772
1983	1,980,140	95,531	63,560	31,971	0	2,075,671
1984	2,028,500	105,434	92,000	13,434	0	2,133,934
1985	2,172,800	50,487	46,440	4,047	0	2,223,287
1986	2,393,500	84,801	77,640	7,161	0	2,478,301
1987	2,338,150	108,888	76,280	32,608	0	2,447,038
1988	2,469,800	50,000	23,360	26,640	0	2,519,800

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 25--Sudan: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	1,073,000	5,000	NA	5,000	0	1,078,000
1962	1,090,000	8,585	NA	8,585	0	1,098,585
1963	1,117,000	9,345	NA	9,345	0	1,126,345
1964	1,152,000	15,643	NA	15,643	0	1,167,643
1965	1,172,000	10,381	NA	10,381	0	1,182,381
1966	1,161,000	13,533	NA	13,533	0	1,174,533
1967	1,181,000	18,940	NA	18,940	0	1,199,940
1968	1,219,000	10,019	NA	10,019	0	1,229,019
1969	1,195,000	27,627	NA	27,627	0	1,222,627
1970	1,210,000	21,213	NA	21,213	0	1,231,213
1971	1,235,000	22,274	NA	22,274	0	1,257,274
1972	1,261,000	12,816	NA	12,816	0	1,273,816
1973	1,282,000	17,951	NA	17,951	0	1,299,951
1974	1,318,000	10,409	NA	10,409	0	1,328,409
1975	1,360,100	10,651	NA	10,651	0	1,370,751
1976	1,459,000	18,261	NA	18,261	0	1,477,261
1977	1,581,000	21,904	21,880	24	0	1,602,904
1978	1,802,000	31,318	28,480	2,838	0	1,833,318
1979	2,033,000	18,476	18,040	436	0	2,051,476
1980	2,373,000	21,608	21,440	168	0	2,394,608
1981	2,673,343	55,821	43,040	12,781	0	2,729,164
1982	2,805,000	90,848	22,240	68,608	0	2,895,848
1983	2,944,000	81,472	31,240	50,232	0	3,025,472
1984	1,904,000	65,962	46,640	19,322	0	1,969,962
1985	2,748,000	126,470	84,360	42,110	0	2,874,470
1986	2,772,000	144,060	46,000	98,060	0	2,916,060
1987	2,800,000	112,340	19,840	92,500	0	2,912,340
1988	2,846,000	95,160	29,800	65,360	0	2,941,160

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 26--Tanzania: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	278,600	26,972	NA	26,972	2,835	302,737
1962	282,400	32,160	NA	32,160	1,389	313,171
1963	292,000	26,940	NA	26,940	2,450	316,490
1964	296,800	31,975	NA	31,975	2,610	326,165
1965	312,900	32,407	NA	32,407	2,186	343,122
1966	324,200	44,145	NA	44,145	335	368,010
1967	344,600	62,196	NA	62,196	924	405,872
1968	357,200	31,746	NA	31,746	441	388,505
1969	385,400	46,037	NA	46,037	581	430,856
1970	395,020	48,184	NA	48,184	3,170	440,034
1971	379,200	43,892	NA	43,892	736	422,356
1972	363,850	53,570	NA	53,570	153	417,267
1973	362,450	53,004	NA	53,004	0	415,454
1974	357,400	50,232	NA	50,232	127	407,505
1975	369,680	54,483	NA	54,483	17	424,146
1976	386,800	49,002	NA	49,002	103	435,699
1977	395,800	60,394	50,120	10,274	44	456,151
1978	403,364	78,736	24,160	54,576	17	482,083
1979	406,524	62,923	31,320	31,603	0	469,447
1980	415,348	32,924	28,600	4,324	383	447,889
1981	458,837	47,684	45,920	1,764	383	506,138
1982	454,815	41,504	38,120	3,384	0	496,319
1983	462,400	19,713	19,670	43	0	482,113
1984	478,120	22,464	21,120	1,344	0	500,584
1985	485,920	32,846	31,320	1,526	0	518,766
1986	494,400	41,628	39,080	2,548	0	536,028
1987	502,600	23,308	22,840	468	0	525,908
1988	510,800	25,340	22,760	2,580	0	536,140

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 27--Uganda: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	208,939	20,452	NA	20,452	184	229,207
1962	195,354	20,579	NA	20,579	0	215,933
1963	200,081	25,618	NA	25,618	33	225,667
1964	200,042	26,936	NA	26,936	6	226,972
1965	201,939	35,774	NA	35,774	50	237,663
1966	201,950	31,214	NA	31,214	141	233,023
1967	209,475	29,880	NA	29,880	143	239,212
1968	212,625	8,127	NA	8,127	87	220,665
1969	229,320	24,484	NA	24,484	35	253,769
1970	222,040	21,210	NA	21,210	0	243,250
1971	239,365	22,971	NA	22,971	0	262,336
1972	247,205	25,921	NA	25,921	0	273,126
1973	255,202	35,741	NA	35,741	0	290,943
1974	263,690	42,764	NA	42,764	0	306,454
1975	282,171	31,684	NA	31,684	0	313,855
1976	282,689	11,033	NA	11,033	0	293,722
1977	285,124	11,960	6,920	5,040	0	297,084
1978	380,776	11,100	10,800	300	0	391,876
1979	366,954	8,552	4,600	3,952	0	375,506
1980	364,000	22,110	18,240	3,870	0	386,110
1981	357,000	45,460	30,640	14,820	0	402,460
1982	350,000	24,750	18,440	6,310	0	374,750
1983	350,000	31,420	31,340	80	0	381,420
1984	252,000	27,060	26,600	460	0	279,060
1985	220,500	21,350	7,640	13,710	0	241,850
1986	300,000	19,640	12,320	7,320	0	319,640
1987	371,700	20,320	11,480	8,840	0	392,020
1988	369,600	25,240	6,120	19,120	0	394,840

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 28--Zaire: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	5,600	30,931	NA	30,931	0	36,531
1962	5,400	31,888	NA	31,888	0	37,288
1963	5,200	18,816	NA	18,816	0	24,016
1964	5,000	22,365	NA	22,365	0	27,365
1965	4,300	35,254	NA	35,254	0	39,554
1966	4,500	39,157	NA	39,157	0	43,657
1967	4,600	34,287	NA	34,287	0	38,887
1968	4,700	44,210	NA	44,210	0	48,910
1969	4,800	33,152	NA	33,152	0	37,952
1970	4,900	103,730	NA	103,730	0	108,630
1971	5,000	71,074	NA	71,074	2	76,072
1972	5,200	75,057	NA	75,057	48	80,209
1973	5,300	66,034	NA	66,034	66	71,268
1974	5,500	70,165	NA	70,165	2	75,663
1975	5,600	52,538	NA	52,538	2	58,136
1976	5,800	71,331	NA	71,331	12	77,119
1977	5,900	28,956	760	28,196	0	34,856
1978	5,200	53,713	43,360	10,353	1	58,912
1979	6,000	77,090	41,080	36,010	0	83,090
1980	6,200	46,280	7,600	38,680	0	52,480
1981	6,240	58,116	20,520	37,596	0	64,356
1982	6,370	39,580	3,800	35,780	0	45,950
1983	6,495	44,100	4,600	39,500	0	50,595
1984	6,500	61,370	1,560	59,810	0	67,870
1985	6,500	93,385	2,320	91,065	0	99,885
1986	6,500	53,580	4,600	48,980	0	60,080
1987	6,800	58,320	4,560	53,760	0	65,120
1988	6,800	62,800	9,880	52,920	0	69,600

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 29--Angola: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	110,000	19,511	NA	19,511	0	129,511
1962	115,000	15,062	NA	15,062	0	130,062
1963	120,000	19,733	NA	19,733	0	139,733
1964	125,000	18,963	NA	18,963	0	143,963
1965	125,000	19,952	NA	19,952	4	144,948
1966	125,000	19,774	NA	19,774	0	144,774
1967	127,000	25,138	NA	25,138	4	152,133
1968	130,000	18,323	NA	18,323	4	148,319
1969	133,000	21,925	NA	21,925	4	154,920
1970	134,000	24,123	NA	24,123	31	158,092
1971	135,000	22,963	NA	22,963	2,606	155,356
1972	130,000	20,658	NA	20,658	1,942	148,716
1973	132,500	27,266	NA	27,266	489	159,277
1974	135,000	22,308	NA	22,308	357	156,952
1975	137,500	18,656	NA	18,656	0	156,156
1976	140,000	40,176	NA	40,176	0	180,176
1977	142,500	76,900	23,000	53,900	0	219,400
1978	143,500	118,568	4,800	113,768	0	262,068
1979	145,000	138,860	10,760	128,100	0	283,860
1980	146,000	125,630	16,320	109,310	0	271,630
1981	147,000	219,069	32,240	186,829	0	366,069
1982	147,500	120,530	43,680	76,850	0	268,030
1983	148,000	149,500	18,480	131,020	0	297,500
1984	148,000	174,480	52,000	122,480	0	322,480
1985	148,000	348,780	26,760	322,020	0	496,780
1986	148,000	116,049	39,800	76,249	0	264,049
1987	148,000	140,201	32,200	108,001	0	288,201
1988	148,000	161,540	12,480	149,060	0	309,540

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 30--Botswana: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	55,400	792	NA	792	0	56,192
1962	56,850	792	NA	792	0	57,642
1963	58,325	792	NA	792	0	59,117
1964	59,775	792	NA	792	0	60,567
1965	61,250	792	NA	792	0	62,042
1966	62,700	792	NA	792	0	63,492
1967	64,175	792	NA	792	0	64,967
1968	65,625	719	NA	719	0	66,344
1969	67,100	1,808	NA	1,808	0	68,908
1970	68,575	1,320	NA	1,320	0	69,895
1971	70,050	1,320	NA	1,320	0	71,370
1972	71,550	1,320	NA	1,320	0	72,870
1973	70,575	2,320	NA	2,320	0	72,895
1974	69,575	7,470	NA	7,470	4	77,041
1975	72,425	9,094	NA	9,094	1	81,518
1976	77,750	7,975	NA	7,975	4	85,721
1977	83,075	10,443	659	9,784	21	93,497
1978	86,625	12,623	1,241	11,382	21	99,227
1979	90,175	50,647	1,427	49,220	202	140,620
1980	93,750	32,580	1,405	31,175	176	126,154
1981	93,825	21,206	1,890	19,316	722	114,309
1982	97,375	26,155	1,606	24,549	61	123,470
1983	100,925	23,860	2,124	21,736	56	124,729
1984	97,500	75,123	4,069	71,054	95	172,528
1985	99,325	53,407	2,726	50,681	123	152,609
1986	101,125	42,798	3,492	39,306	104	143,819
1987	103,000	27,484	3,629	23,855	140	130,344
1988	104,800	28,604	NA	28,604	152	133,252

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 31--Comoros: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	1,350	1,219	NA	1,219	0	2,569
1962	1,500	1,385	NA	1,385	0	2,885
1963	1,700	1,310	NA	1,310	0	3,010
1964	1,850	1,316	NA	1,316	0	3,166
1965	2,000	1,135	NA	1,135	0	3,135
1966	2,275	1,269	NA	1,269	0	3,544
1967	2,350	1,339	NA	1,339	0	3,689
1968	2,425	1,225	NA	1,225	0	3,650
1969	2,500	1,566	NA	1,566	0	4,066
1970	2,575	1,542	NA	1,542	0	4,117
1971	2,650	1,979	NA	1,979	0	4,629
1972	2,725	1,690	NA	1,690	0	4,415
1973	2,800	1,763	NA	1,763	0	4,563
1974	2,875	1,799	NA	1,799	0	4,674
1975	2,950	2,070	NA	2,070	0	5,020
1976	3,050	1,634	NA	1,634	0	4,684
1977	3,100	1,846	500	1,346	0	4,946
1978	3,150	1,269	200	1,069	0	4,419
1979	3,200	2,030	916	1,114	0	5,230
1980	3,250	1,685	1,152	533	0	4,935
1981	3,350	1,713	400	1,313	0	5,063
1982	3,400	2,804	400	2,404	0	6,204
1983	3,450	4,674	0	4,674	0	8,124
1984	3,500	4,047	1,200	2,847	0	7,547
1985	4,000	6,913	400	6,513	0	10,913
1986	4,100	4,320	1,100	3,220	0	8,420
1987	4,100	6,202	0	6,202	0	10,302
1988	4,200	4,065	100	3,965	0	8,265

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 32--Congo: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	750	3,721	NA	3,721	0	4,471
1962	750	3,952	NA	3,952	0	4,702
1963	1,125	4,539	NA	4,539	0	5,664
1964	1,125	4,086	NA	4,086	0	5,211
1965	1,500	3,232	NA	3,232	0	4,732
1966	1,500	3,729	NA	3,729	0	5,229
1967	1,500	4,288	NA	4,288	0	5,788
1968	1,500	4,346	NA	4,346	0	5,846
1969	1,875	5,645	NA	5,645	0	7,520
1970	1,875	4,105	NA	4,105	0	5,980
1971	1,875	5,606	NA	5,606	0	7,481
1972	1,875	5,800	NA	5,800	0	7,675
1973	1,875	6,315	NA	6,315	0	8,190
1974	2,025	4,150	NA	4,150	0	6,175
1975	2,100	5,765	NA	5,765	0	7,865
1976	2,175	7,098	NA	7,098	0	9,273
1977	2,325	6,910	484	6,426	0	9,235
1978	2,625	7,668	287	7,381	0	10,293
1979	2,670	8,110	1,300	6,810	2	10,778
1980	2,700	10,577	742	9,835	4	13,273
1981	2,745	9,304	70	9,234	0	12,049
1982	2,775	11,871	100	11,771	0	14,646
1983	2,805	19,560	120	19,440	10	22,356
1984	2,805	19,763	228	19,535	0	22,568
1985	2,850	23,123	91	23,032	15	25,958
1986	2,850	17,628	76	17,552	7	20,471
1987	2,900	17,520	86	17,434	0	21,420
1988	2,900	17,169	45	17,124	0	25,069

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 33--Lesotho: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	10,925	5,700	NA	5,700	0	16,625
1962	11,204	5,989	NA	5,989	0	17,193
1963	9,748	2,865	NA	2,865	0	12,613
1964	8,932	11,537	NA	11,537	0	20,469
1965	10,150	24,761	NA	24,761	0	34,911
1966	10,440	0	NA	0	0	10,440
1967	10,730	1,244	NA	1,244	0	11,974
1968	11,310	0	NA	0	0	11,310
1969	12,180	3,382	NA	3,382	0	15,562
1970	13,050	1,657	NA	1,657	0	14,707
1971	13,920	11,400	NA	11,400	0	25,320
1972	14,500	21,922	NA	21,922	0	36,422
1973	15,370	2,703	NA	2,703	0	18,073
1974	15,950	9,103	NA	9,103	0	25,053
1975	16,820	7,436	NA	7,436	0	24,256
1976	17,400	10,712	NA	10,712	0	28,112
1977	17,980	15,505	7,640	7,865	0	33,485
1978	18,560	19,680	9,960	9,720	0	38,240
1979	19,140	18,420	16,800	1,620	0	37,560
1980	19,720	22,416	20,480	1,936	0	42,136
1981	20,300	22,868	21,480	1,388	0	43,168
1982	20,880	36,748	26,680	10,068	0	57,628
1983	21,460	56,992	26,720	30,272	0	78,452
1984	22,040	43,720	28,240	15,480	0	65,760
1985	22,330	28,200	27,840	360	0	50,530
1986	22,620	25,920	25,160	760	0	48,540
1987	22,900	19,080	18,700	380	0	41,980
1988	23,200	15,280	15,140	140	0	38,480

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 34--Madagascar: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	26,500	13,287	NA	13,287	0	39,787
1962	27,880	16,659	NA	16,659	0	44,539
1963	27,300	19,371	NA	19,371	0	46,671
1964	27,300	21,203	NA	21,203	0	48,503
1965	28,800	21,800	NA	21,800	4	50,596
1966	35,000	19,577	NA	19,577	2	54,575
1967	35,000	20,708	NA	20,708	0	55,708
1968	35,000	20,533	NA	20,533	2	55,531
1969	33,600	22,067	NA	22,067	4	55,663
1970	31,445	27,639	NA	27,639	4	59,080
1971	31,755	30,403	NA	30,403	6	62,152
1972	30,930	27,024	NA	27,024	184	57,770
1973	28,350	22,472	NA	22,472	4	50,818
1974	27,720	20,592	NA	20,592	0	48,312
1975	30,450	17,584	NA	17,584	0	48,034
1976	30,850	17,322	NA	17,322	388	47,785
1977	31,100	24,973	3,080	21,893	274	55,800
1978	32,000	23,588	4,640	18,948	44	55,544
1979	35,550	35,565	9,240	26,325	32	71,083
1980	35,000	25,025	0	25,025	29	59,996
1981	36,523	13,581	7,600	5,981	0	50,104
1982	38,500	22,461	8,360	14,101	0	60,961
1983	40,600	22,174	9,920	12,254	8	62,767
1984	40,635	24,671	16,760	7,911	8	65,298
1985	40,810	21,215	12,920	8,295	45	61,980
1986	40,950	31,792	22,200	9,592	8	72,734
1987	41,100	34,632	14,520	20,112	0	75,732
1988	41,300	17,469	13,760	3,709	0	58,769

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 35--Malawi: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	10,800	2,521	NA	2,521	0	13,321
1962	11,100	2,635	NA	2,635	0	13,735
1963	11,400	2,626	NA	2,626	0	14,026
1964	12,000	3,192	NA	3,192	0	15,192
1965	13,200	5,690	NA	5,690	0	18,890
1966	14,100	4,371	NA	4,371	0	18,471
1967	15,000	5,037	NA	5,037	0	20,037
1968	15,600	5,600	NA	5,600	0	21,200
1969	16,200	7,226	NA	7,226	0	23,426
1970	16,000	9,676	NA	9,676	0	25,676
1971	17,000	8,853	NA	8,853	0	25,853
1972	14,305	9,628	NA	9,628	0	23,933
1973	19,760	11,076	NA	11,076	0	30,836
1974	18,392	10,224	NA	10,224	410	28,206
1975	25,214	6,253	NA	6,253	0	31,467
1976	33,135	7,613	NA	7,613	0	40,748
1977	30,663	10,141	7,040	3,101	0	40,804
1978	33,475	18,068	7,760	10,308	30	51,513
1979	33,576	21,302	9,280	12,022	144	54,734
1980	33,600	24,922	7,760	17,162	0	58,522
1981	36,160	20,447	10,840	9,607	0	56,607
1982	37,450	22,802	8,520	14,282	0	60,252
1983	38,710	21,323	7,760	13,563	0	60,033
1984	40,100	19,334	3,200	16,134	262	59,172
1985	43,200	31,265	2,400	28,865	296	74,168
1986	44,400	25,010	800	24,210	0	69,410
1987	40,000	10,615	800	9,815	0	50,615
1988	43,700	18,744	1,600	17,144	0	62,444

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 36--Mauritius: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	21,000	20,747	NA	20,747	0	41,747
1962	21,000	17,902	NA	17,902	0	38,902
1963	21,100	20,259	NA	20,259	0	41,359
1964	21,106	22,071	NA	22,071	0	43,177
1965	21,200	21,266	NA	21,266	0	42,466
1966	21,200	24,642	NA	24,642	0	45,842
1967	21,300	19,797	NA	19,797	0	41,097
1968	21,400	21,811	NA	21,811	0	43,211
1969	21,500	22,577	NA	22,577	0	44,077
1970	21,400	30,249	NA	30,249	0	51,649
1971	21,432	29,502	NA	29,502	0	50,934
1972	21,588	33,053	NA	33,053	0	54,641
1973	21,650	31,617	NA	31,617	0	53,267
1974	22,000	39,162	NA	39,162	0	61,162
1975	22,400	38,251	NA	38,251	0	60,651
1976	24,720	49,771	NA	49,771	0	74,491
1977	24,178	67,058	10,800	56,258	0	91,236
1978	24,500	68,608	16,760	51,848	10	93,098
1979	25,000	73,346	10,720	62,626	0	98,346
1980	25,000	70,848	13,280	57,568	169	95,679
1981	25,000	81,455	8,640	72,815	213	106,242
1982	25,000	69,612	10,040	59,572	3,571	91,041
1983	25,000	79,351	7,040	72,311	1,530	102,821
1984	25,000	79,776	12,400	67,376	25	104,751
1985	25,000	77,047	1,560	75,487	101	101,946
1986	25,000	74,719	1,600	73,119	107	99,613
1987	25,000	82,523	2,280	80,243	24	107,499
1988	25,000	95,678	800	94,878	25	120,653

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 37--Mozambique: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	50,415	11,370	NA	11,370	9	61,776
1962	53,310	16,085	NA	16,085	10	69,385
1963	54,855	18,688	NA	18,688	565	72,977
1964	56,790	19,580	NA	19,580	513	75,857
1965	58,366	19,237	NA	19,237	421	77,182
1966	58,044	24,982	NA	24,982	317	82,709
1967	59,640	22,985	NA	22,985	410	82,215
1968	60,930	18,624	NA	18,624	321	79,233
1969	62,730	22,137	NA	22,137	310	84,556
1970	64,155	24,664	NA	24,664	316	88,502
1971	65,430	25,413	NA	25,413	211	90,632
1972	66,840	26,101	NA	26,101	26	92,915
1973	68,250	29,244	NA	29,244	39	97,455
1974	68,625	26,305	NA	26,305	118	94,812
1975	67,310	28,578	NA	28,578	155	95,733
1976	64,550	22,392	NA	22,392	0	86,942
1977	65,625	42,880	7,160	35,720	0	108,505
1978	67,380	67,920	26,720	41,200	0	135,300
1979	68,625	20,140	13,800	6,340	0	88,765
1980	70,550	27,860	6,240	21,620	0	98,410
1981	72,475	29,248	16,120	13,128	0	101,723
1982	71,850	40,316	23,800	16,516	0	112,166
1983	71,225	21,948	21,240	708	0	93,173
1984	72,300	84,340	40,800	43,540	0	156,640
1985	73,375	71,600	44,040	27,560	0	144,975
1986	73,600	49,269	7,040	42,229	0	122,869
1987	74,700	116,957	79,880	37,077	0	191,657
1988	75,800	44,280	24,120	20,160	0	100,080

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 38--Zambia: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	39,000	5,280	NA	5,280	0	44,280
1962	39,000	5,280	NA	5,280	0	44,280
1963	39,300	4,400	NA	4,400	0	43,700
1964	39,600	10,466	NA	10,466	349	49,717
1965	39,900	13,193	NA	13,193	0	53,093
1966	40,500	19,679	NA	19,679	0	60,179
1967	41,100	28,805	NA	28,805	0	69,905
1968	42,000	28,350	NA	28,350	0	70,350
1969	42,900	34,947	NA	34,947	0	77,847
1970	43,800	46,138	NA	46,138	0	89,938
1971	45,000	56,020	NA	56,020	0	101,020
1972	45,900	36,139	NA	36,139	0	82,039
1973	47,100	36,143	NA	36,143	0	83,243
1974	47,700	133,143	NA	133,143	4	180,839
1975	49,800	48,024	NA	48,024	0	97,824
1976	54,000	68,725	NA	68,725	0	122,725
1977	56,100	44,901	4,560	40,341	0	101,001
1978	57,450	28,594	1,520	27,074	0	86,044
1979	59,790	26,052	16,160	9,892	0	85,842
1980	58,890	22,846	16,160	6,686	16	81,720
1981	58,833	21,767	18,440	3,327	0	80,600
1982	66,315	31,190	760	30,430	0	97,505
1983	67,590	8,590	3,800	4,790	0	76,180
1984	70,092	4,514	3,040	1,474	0	74,606
1985	72,630	12,936	12,040	896	0	85,566
1986	74,790	7,669	1,560	6,109	24	82,435
1987	77,000	3,860	2,840	1,020	0	79,860
1988	81,000	2,809	2,000	809	0	85,809

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

Appendix table 39--Zimbabwe: Dairy indicators

Year	Production	Imports	Aid	Commercial imports 1/	Exports	Consumption
			tons			
1961	110,000	6,860	NA	6,860	5,740	111,120
1962	125,000	6,860	NA	6,860	5,740	126,120
1963	127,000	6,860	NA	6,860	5,740	128,120
1964	125,000	25,336	NA	25,336	7,301	143,035
1965	127,000	9,222	NA	9,222	12,538	123,684
1966	140,000	7,393	NA	7,393	7,802	139,591
1967	136,850	2,000	NA	2,000	0	138,850
1968	144,181	1,800	NA	1,800	0	145,981
1969	156,750	1,600	NA	1,600	0	158,350
1970	119,686	1,400	NA	1,400	0	121,086
1971	127,658	1,200	NA	1,200	0	128,858
1972	138,981	800	NA	800	0	139,781
1973	152,800	600	NA	600	0	153,400
1974	141,756	400	NA	400	0	142,156
1975	130,617	2,560	NA	2,560	2,074	131,102
1976	152,743	105	NA	105	2,316	150,532
1977	152,134	75	0	75	4,392	147,817
1978	141,242	320	0	320	6,576	134,987
1979	149,487	0	0	0	3,279	146,208
1980	155,743	8,489	2,280	6,209	2,666	161,567
1981	151,877	23,369	0	23,369	196	175,049
1982	165,140	18,562	18,400	162	36	183,666
1983	184,400	20,768	13,200	7,568	81	205,087
1984	191,600	32,635	31,960	675	2,063	222,172
1985	200,400	2,634	2,500	134	4,889	198,145
1986	218,700	3,782	3,500	282	4,313	218,169
1987	238,400	536	440	96	31,537	207,399
1988	244,100	2,128	NA	2,128	28,020	218,208

NA = Not available.
1/ Commercial imports equal total imports when food aid data are not available.
Source: Food and Agriculture Organization of the United Nations.

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