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PALM OIL

PROSPECTS AND ISSUES

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SUMMARY AND CONCLUSIONS

i. World output of palm oil has grown rapidly since the late sixties. World trade of palm oil has more than doubled between 1965 and 1975. The rapid expansion of the oil palm acreage in Malaysia, Indonesia and the Ivory Coast during the sixties will account for the bulk of palm oil supplies that will come on the market between now and the early eighties. We project that palm oil will increase its share in the international trade of fats and oils from 3.7 percent in 1975 to 22.9 percent in 1985.

ii. In most developing countries per capita consumption of fats and oils is far below that in developed countries. Since the income elasticity of fats and oils consumption declines with rising per capita incomes, per capita consumption is projected to grow faster in developing countries than in developed countries, where it is approaching its saturation level. Rapidly growing population in developing countries will magnify the income-led increases in per capita consumption. Towards the mid-eighties demand for fats and oils is expected to grow faster than total supplies.

iii. The demand for soft vegetable oils (soybean oil, cottonseed oil, etc.) is projected to increase faster than the demand for hard oils (palm oil, coconut oil, palm kernel oil) and animal fats. At the same time production of hard oils will expand rapidly. Although hard oils compete with soft oils in many end uses, the potential market for soft oils is considerably larger than that for hard oils. Continued expansion of hard oil supplies, mainly palm oil, will therefore depress their prices relative to those for soft oils. In 1974 constant dollars the price of palm oil is projected at U.S.$320 per ton, CIF European ports, by 1985. This corresponds to U.S.$757 in terms of current dollars. (Soybean oil prices are projected at U.S.$395 per ton in 1974 dollars, in 1985.)

iv. Oil palms produce more oil per unit of land than any other oil crop. The potential for further increases in oil palm yields, coupled with low production costs, gives palm oil a competitive advantage over other fats and oils. Thus further investments in palm oil production are likely to be forthcoming, even at current, rather low, prices of fats and oils.

v. Oil palm projects promise good economic rates of return. Since oil palm is in many regions more remunerative than the alternative cash crops that land and climate will permit, oil palm projects offer an excellent opportunity to raise the incomes of low income groups. We recommend that the Bank consider further lending for oil palm projects, if these either involve:

(a) production by low income groups, or

(b) production in countries in which domestic supply of fats and oils is insufficient to meet the growing demand and where the palm oil output from new investments will be consumed domestically.

I. PALM OIL IN THE FATS AND OILS MARKET 1/

1. A sharp drop in prices for fats and oils paired with a steep increase in palm oil exports during 1975 sparked a lively debate about the impact of further investments in oil palm on the world fats and oils economy. It has been argued that the rapidly growing output of palm oil might seriously weaken markets for fats and oils. How likely this is can only be assessed by looking at the market for palm oil in the context of the world fats and oils economy, since the two are integrally related. This chapter looks at the demand, supply and price situation during the next decade (1976-1985). Chapter II outlines the Bank's past role in the development of the palm oil industry and the main policy issues with respect to further Bank lending for oil palm projects.

A. Demand

Substitutability

2. An important distinguishing feature of fats and oils is the degree to which their fatty acids are saturated. Oils with a high percentage of unsaturated fatty acids -- soybean oil, for example -- are generally liquid at room temperature in temperate climates, and are thus called "soft" oils. Oils or fats with a large proportion of saturated fatty acids, such as palm oil, are usually solid or semisolid. In general, unsaturated fats and oils are used for the manufacture of liquid fat products (salad and cooking oils). Saturated fats and oils are the main ingredients in the manufacture of hard fat products, such as margarine, shortening and soaps. 2/ Though previously palm oil was only used for industrial purposes, improved fractionation techniques now allow it to compete with other fats and oils in the manufacture of margarines, shortenings, cooking fats, salad oils, confectionary and ice cream. However, soft oils can be hardened through hydrogenation, and this has expanded the range of fats and oils that can substitute for palm oil and other hard (saturated) oils in these end uses. Dehydrogenation, the transformation of saturated fatty acids into their unsaturated form, has not proved economic.

so far?

1/ The term "fats and oils" is used in this paper for all fats and oils generally classified as "edible/soap fats and oils"; these include soybean oil, sunflower seed oil, groundnut oil, cotton seed oil, rapeseed oil, olive oil, coconut oil, palm kernel oil, palm oil, fish oil, butter, lard and tallow. In recent years, their combined production accounted for about 97 percent of the total production of all major fats and oils.

2/ Table 12, Annex I.

3. Though technically most fats and oils are interchangeable, 1/ costs of refining and specific end-use requirements limit the range within which individual fats and oils are actually interchanged. The need for certain chemical components (e.g. fatty acids) or certain physical properties (e.g. flavor, color, smell, melting point) in a specific end-use gives the oil or fat which has these components or properties a competitive advantage over other fats and oils in that end-use ('specific demand'). 2/ Thus each oil or fat faces two distinct markets: first, the market in which it has a qualitative advantage over other fats and oils; and second, the market in which it competes directly with other fats and oils. The size of the first market of a fat or oil varies with the demand for the end products which need its special properties. The demand for this oil or fat in the first market is less price elastic than the demand in the second market. In the first market, prices reflect the relative strength of demand and supply for the individual oil rather than the market situation for all fats and oils.

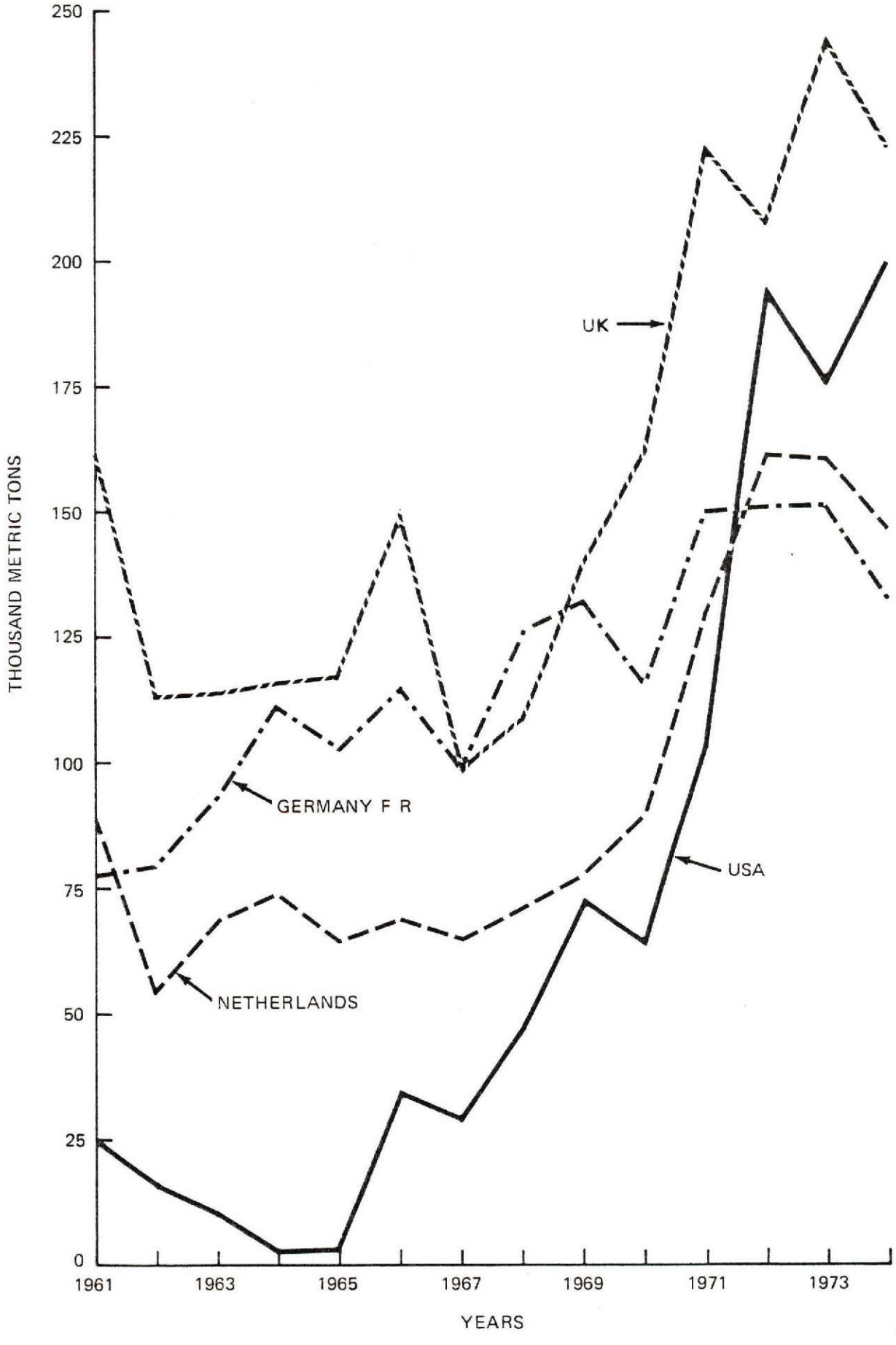
4. Unlike other hard oils, such as coconut oil and palm kernel oil which have a large distinct market because of their lauric acid content, palm oil has no physical or chemical properties which give it a qualitative advantage over other fats and oils in current end-uses. Because there is no specific demand for palm oil, its price depends on the overall situation for all fats and oils. Palm oil prices are most highly correlated with those of other low-priced fats and oils -- fish oil, tallow and lard -- and the medium-priced oils, mainly soybean oil and sunflower oil, which are widely used in the manufacture of margarines and shortening. Palm oil's only effective competitor in the "inedible" market, tallow, is traditionally cheaper than palm oil, which gives tallow a competitive advantage in three major markets: the soap industry, the chemical industry and the animal feed industry.

1/ The correlation coefficients for prices of selected fats and oils contained in Table 6, Annex I, indicate the close relationship that exists among most fats and oils.

2/ Substitution between individual fats and oils is impossible if the end product requires a certain fatty acid. Interchangeability is also limited by consumer tastes and preferences; examples are olive oil and groundnut oil which are marketed predominantly in their pure form because consumers prefer their flavor.

CHART I

PALM OIL IMPORTS FOR SELECTED COUNTRIES (1961 – 1974)



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Growth of Demand and Imports

5. Worldwide, the consumption of fats and oils expanded steadily at an average rate of 3.4 percent per year from 1960 to 1975. 1/ Developed countries account for more than half of world consumption and have been the main export market for fats and oils produced in developing countries. Within the developed countries the most rapid increase in consumption between 1960 and 1975 was recorded in Oceania, Japan and South Africa (7.0 percent per year), followed by Western Europe (3.0 percent) and North America (2.6 percent). Among the developing regions, Latin America recorded the highest rate of growth in consumption (4.3 percent) followed by Africa (3.1 percent) and Asia (2.5 percent).

6. Per capita consumption of fats and oils depends largely on incomes. In several developing countries annual per capita consumption is less than 5 kilograms. In most developed countries it ranges from 25 to 30 kilograms. Statistical analysis of the fats and oils consumption pattern shows that demand increases rapidly with incomes at low income levels. At high income levels -- roughly those now reached in the United States and some European countries -- the demand responsiveness of fats and oils to increases in income levels off at about 30 kilograms per capita.

7. Regional consumption patterns of fats and oils generally reflect regional production patterns and natural storage conditions. Economic protection and lower transport costs play an important role in the preference for locally produced fats and oils. In temperate zones, soybeans, cottonseeds and sunflower seeds supply most of the oils needed in the manufacture of margarine, shortening, and other fat products. In tropical and semi-tropical zones, coconut oil and palm oil dominate vegetable oil consumption.

8. Between 1960 and 1975 more than half of palm oil output has been consumed in producing countries. About 90 percent of palm oil exports go to developed countries. Germany, the Netherlands and the United Kingdom account for almost 60 percent of world palm oil imports (Chart 1). While the shares of the three European countries declined slightly during the past two decades (1955-75), that of the U.S. has tripled over the last ten years.

9. The growing demand for palm oil in the United States largely reflects movements in relative prices. The use of vegetable oils in consumer products has increased at the expense of animal fats, as the latter's relative prices rose, and the price of palm oil declined, relative to those of other vegetable oils. About 85 percent of the palm oil the U.S. uses for edible purposes is

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1/ All growth rates in this paper are compound growth rates between the indicated end points, i.e. 3.4 percent is the growth rate from end 1960 to end 1975, and thus does not include growth in 1960.

utilized in the manufacture of shortening, 1/ and only a small proportion is used for margarine. (In the United States, shortening production exceeds margarine production). In recent years, the trend has been towards increased consumption of shortening at the expense of lard. In addition, shortening made only from vegetable oils has gained at the expense of shortening containing both animal fats and vegetable oils, a shift which is likely to continue, mainly because of the increasing awareness of the health risk associated with consumption of fats and oils containing a high percentage of saturated fatty acids.

10. India and Iraq have been the major net importers among developing countries. During the period 1960-64, India's share in total imports of palm oil had grown to 6 percent; however, it dropped to less than 2 percent in the following decade (1967-75) mainly because of import controls imposed by the Indian Government. Iraq's imports continued to increase.

Demand Forecasts

11. Projected world demand for fats and oils in 1980 and 1985, shown in Table 1 below, largely reflects the real growth in per capita incomes in 145 countries. 2/

Table 1: FATS AND OILS: DEMAND, SUPPLY AND PRICES
SELECTED YEARS

Item	1972	1974	1976	1980	1985	1974-80	1974-85
	----------1,000 Metric Tons----------					Percent	
Demand	38,869*	46,411	45,360	51,750	57,500	1.8	2.0
Supply	39,750	45,045	46,280	53,200	58,300	2.8	2.4
Fats & Oils Price Index **	64.0	100.0	51.2	46.5	52.2	-12.0	-5.7

*Estimated. ** In 1974 constant U.S. dollars.

Sources: FAO (1972-74); IBRD (1976-85).

12. In many of the developed countries, at present the main market for exports of palm oil, per capita consumption of fats and oils is gradually approaching a saturation level, and no large increase in overall demand is likely unless new products and end uses are developed. However, since its

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1/ In the U.K. palm oil is used both in margarine and shortening production. In the EEC, between 60 and 80 percent of the palm oil is used as as an ingredient of margarine. Its use in shortening is less important. Compared with the U.S., European countries use of of shortening is limited.

2/ The 1975 edition of the World Bank Atlas contains a list of these countries. See Annex II below for a brief note on the estimation method.

price is expected to remain lower than those of its main competitors in shortening, and will continue to fall relative to that of soybean oil, in particular, demand for palm oil is likely to benefit from the growth in shortening consumption.

13. As the potential for expanding consumption declines in developed countries, an increasing share of the world production of fats and oils will have to be marketed in developing countries. Demand for vegetable oils in these countries is expected to rise steadily over the next ten years. Particularly marked increases in the demand for palm oil are expected in Nigeria and Indonesia, both exporters at present. 1/ Palm oil has a major advantage over most other fats and oils -- it is comparatively inexpensive 2/ -- and to some extent it will replace coconut oil both for edible purposes and in the manufacture of soaps. The greatest scope for substituting palm oil for coconut oil in developing countries is in cooking oil. To obtain a product likely to be acceptable to consumers (who traditionally prefer coconut oil for cooking), palm oil has to be fractionated, and the crude liquid fraction (palm olein) has to be refined (de-odorized, de-colorised, and the fatty acids removed) and then either blended with coconut oil or flavored with coconut oil taste. In the refining process many of the nutritional advantages of palm oil, such as its high content of vitamin A, are lost. what else ?

B. SUPPLY

14. During the remainder of the seventies, world production of fats and oils is projected to grow at about the same rate as during the sixties, and to increase by 18.1 percent over the 5-year period (Table 2). Given the consumption forecasts shown in Table 1, production will exceed consumption by about 1.5 million tons in 1980, and real prices for fats and oils (in 1974 constant dollars) will have to decline below their average level of the sixties (Table 4, Annex I). This decline in real prices is likely to reduce investments in oil bearing tree crops, and thus result in slower expansion of production of fats and oils during the later part of the early eighties. Because consumption of fats and oils is projected to increase considerably faster than their production during this latter period, real prices will rise again.

15. The supply of most fats and oils depends largely on price movements in other markets. Not only are fats and oils extracted from a large number of oilbearing materials, but many of them contain other, often more valuable, products in addition to fats and oils. Many oilseeds are grown for the

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1/ See paragraph 34 below.

2/ Food aid from developed countries, such as that from the United States under P.L. 480, could make this price advantage ineffective. Subsidized soybean oil exports severely limit the market potential of palm oil (either domestically produced or imported) in receiving developing countries.

high-protein meal they contain; lard and tallow are by-products in meat production; fish oil and other marine oils (with the exception of whale oil) are a by-product of fishmeal production. 1/

Table 2: WORLD PRODUCTION OF FATS AND OILS, BY MAJOR GROUPS
Actual 1960, 1975, Projected 1980 and 1985

Item	1960		1975		1980		1985	
	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share
Vegetable Oil	15610	58.4	29000	65.3	37000	69.6	41200	70.7
From:								
Oilseeds /a	10785	40.4	21365	48.1	26900	50.6	29400	50.4
Tree Crops /b	4825	18.0	7635	17.2	10100	19.0	11800	20.3
Animal Fats and Marine Oils	11100	41.6	15420	34.7	16200	30.4	17100	29.3
Total	26710	100.0	44420	100.0	53200	100.0	58300	100.0

/a Includes soybean oil, sunflower oil, cottonseed oil, groundnut oil, and rapeseed oil.

/b Includes olive oil, palm oil, coconut oil and palm kernel oil.

Sources: U.S.D.A. (1960-69); IBRD (1975-85).

Animal Fats

16. The share of animal fats 2/ in the world fats and oils market will decline from 42 percent in 1960 to 30 percent in 1980, and 29 percent in 1985. Most of this decline will be caused by a sharp drop in lard production. A steady increase in the price ratio between pork and lard has encouraged production of leaner hogs. A similar shift in demand towards leaner beef will slow the growth of tallow production. Nevertheless, tallow will remain a major source of fat; its share in the production of all fats and oils is projected at 10 percent in 1985, about the same as the projected share of palm oil and roughly half the share of soybean oil. The production of butter is projected to increase much more slowly than during the sixties. In most countries butter production has remained almost stagnant,

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1/ It could be argued that continued low prices for fats and oils would encourage producers to switch to crops other than oilseeds. Since it is unlikely that producers of oilbearing tree crops (coconut, palm kernel, palm fruit) would uproot their trees, producers of annual oilseed crops would have to bear most of the burden of adjustment. The extent of such a switch is difficult to evaluate, since most of annual oilseed crops are grown for their content of high-protein meal.

2/ Includes fish oil, tallow and lard.

though it has grown significantly in countries with a support price system for butter. The production of fish oil has grown at an average rate of 6 percent per year during the period from 1960 to 1975. With the projected decline in fish catch in the coming years, this growth rate will drop to less than 2 percent between 1980 and 1985 and the share of fish oil in the overall supply of fats and oils will drop from 3.0 percent during 1967-69 to about 2.4 percent in 1980 and 1985.

Vegetable Oils

17. Since the early sixties, world production of vegetable oils has increased faster than that of animal fats and marine oils: the share of vegetable oils in the overall production of fats and oils grew by 7 percentage points between 1960 and 1975 (Table 2). We project that this trend will continue and by 1985 more than 70 percent of the total supply of fats and oils will come from vegetable oils. The expansion of vegetable oil production largely reflects the rapidly growing demand for high-protein meals and the steep increase in palm oil supplies. The increase in the market share of vegetable oils opens opportunities for virtually any of the latter in view of the high degree of substitution between them. For each individual oil the rate of growth of supplies compared with that of competing oils does have an influence on its relative price but this influence weakens as the market for all fats and oils approaches equilibrium.

18. Soybeans dominate the world fats and oils economy. World soybean oil output has risen from 3.5 million tons in 1960-62 to 8.6 million tons in 1975, a rise of 14.5 percent. About 40 percent of world production is exported. The largest quantity increase was recorded in the United States where production nearly tripled, rising from 2.5 million tons in 1956-60 to 7 million tons in 1975. United States soybean production is expected to reach about 48 million tons in 1980. An increase in soybean prices during the period 1980-85 could bring soybean production in the United States to 50 million tons. Brazilian soybean production is expected to continue to rise sharply to about 15 million tons by 1980 and 22 million tons by 1985. China's soybean output has remained at about 10 to 12 million tons throughout the last two decades; and since future production is likely to be tailored to domestic needs, it is not expected to affect the world fats and oils economy. Total world production of soybeans, including that of China, is forecast to reach 70 million tons by 1980 and about 80 million tons by 1985. This corresponds to a world soybean oil production of nearly 12 million tons by 1980 and 13.5 million tons by 1985, or a continuing share of more 20 percent in the total supply of fats and oils. About 40 percent of the soybean oil produced is likely to enter world trade.

19. World output of groundnuts increased at a diminishing rate in the last decade, particularly after 1967. World exports of groundnut oil have been stagnant since 1955, except for a shortlived increase during 1966-68. Production is not expected to rise again at rates comparable to those in the fifties unless vigorous expansion plans are undertaken.

20. World coconut production remained stagnant from the mid-1960s to 1970, and the improvement of the last two years was mainly due to favorable

weather conditions. The development and use of high-yielding hybrid varieties could increase production, but the effect would not be felt until after 1980.

21. The production of cottonseed oil has grown slowly in the past decade -- at less than 1 percent a year. A rise in supply occurred in 1972 and is expected to continue into the late seventies, due to the diversion of cottonseed from direct feeding to oil extraction in some countries. However, the long-term growth, linked to the growth of cotton production, is not expected to exceed 1.7 percent per year.

22. Sunflower seed is mainly produced in centrally planned economies, and output has stagnated in recent years. No great change is expected in the period to 1985, and the area presently under sunflower in the USSR will probably not be greatly expanded. The possibility of a large-scale introduction of sunflower planting in the United States still seems remote.

23. Rapeseed originates mainly in Canada, Western Europe, the USSR and Eastern Europe. Output has expanded recently, but it is not expected to capture a large share of the growing market for oils.

Palm Oil

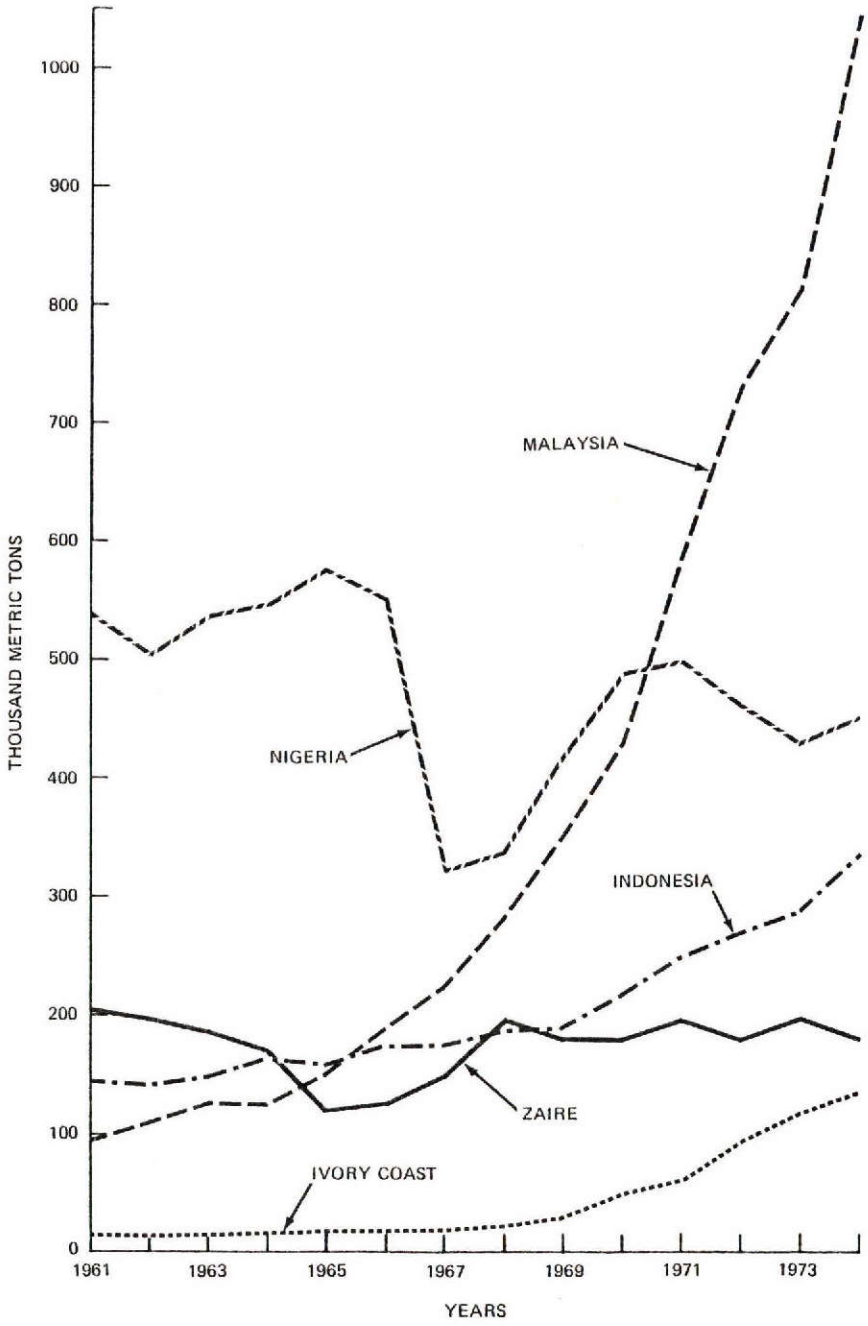
24. Production Characteristics. Oil palms produce more oil per unit of land than any other oilseed crop (Table 10, Annex I). Their fruit contains two oils: palm oil and palm kernel oil (the latter is extracted from the seed. The trees' economic life lasts about 30 years. They produce their first crop during the third year after planting and reach peak yields (2.5 tons per acre) between the eighth and tenth year; from then on yields decline gradually (at about 2 percent per year). 1/

25. The production costs of palm oil are far below those of most other vegetable oils. 2/ Although oil palms need between 1800 and 2200 mm. rainfall regularly distributed over the year, about 2000 hours of sunshine, and sufficient fertilizer (nitrogen and potash) to produce the high yields mentioned above, they require little labor compared with other tree crops, such as rubber. Most of the labor is needed for harvesting, which demands careful handling of the fresh fruit bunches. Bruising the fruit results in a higher content of free fatty acids, lowering the quality and price of the palm oil.

1/ Modern oil palm estates use selections that produce palm fruits with a smaller kernel than those found in wild groves. Most exports of palm kernel oil originate in West African countries, wich produce most of their palm oil from wild groves.

2/ For example, the production costs of a metric ton of palm oil (ex. installation in Malaysia) currently range from US$150 to US$190 (Table 11, Annex I). Because most fats and oils are recovered jointly with other products (e.g., oil cakes, meats), the production costs of fats and oils depend to some extent on the method chosen for allocating the processing costs among end products.

PALM OIL PRODUCTION FOR SELECTED COUNTRIES (1961–1974)



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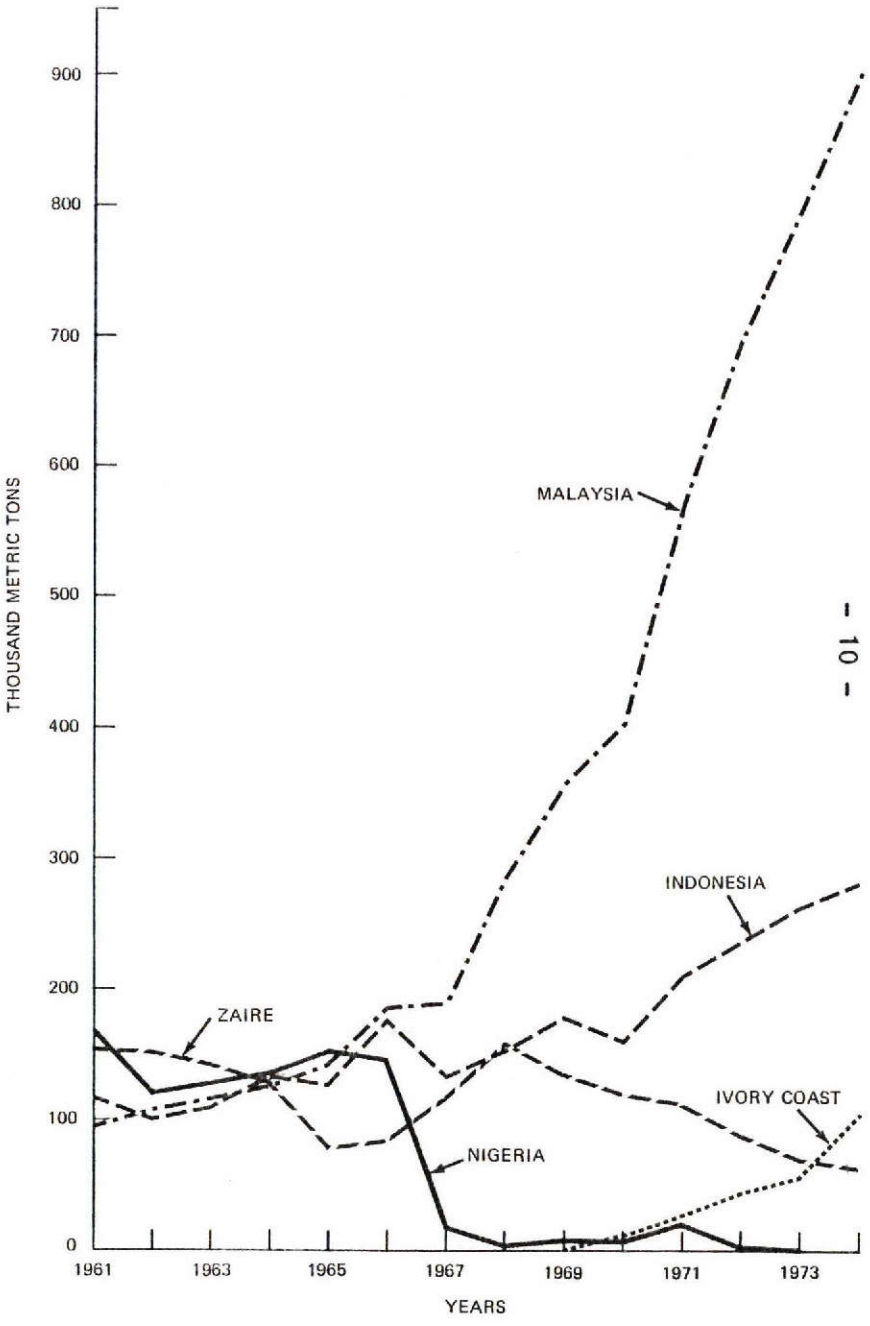
PALM OIL EXPORTS FOR SELECTED COUNTRIES (1961–1974)



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Thus to produce high quality palm oil (at low cost), harvesting and processing have to be well synchronized. This requires good management and a well-maintained transportation network. The production of palm oil is more capital- than labor-intensive.

26. The supply of palm oil is highly inelastic 1/ because harvesting will continue even if palm oil prices should fall below variable costs. 2/ There are two main reasons: (a) producers have few alternative production possibilities, short of uprooting the palms; 3/ and (b) they would have to collect the ripe fresh fruit bunches anyway, to prevent the occurrence of pests and diseases in oil palms caused by overripe and rotting fruit. The decision to extract the oil will depend largely on the direct operating costs of the mill and the marketing costs for the end products (palm oil, palm kernel oil, and palm kernel cake).

27. Growth of Production and Exports. During the sixties, palm oil production grew at roughly the same rate (3.1 percent per year) as the production of all fats and oils. Since 1970, the growth rate of palm oil production accelerated more than 11 percent a year, compared with an annual growth rate of 4.2 percent for all fats and oils. This steep increase in the growth of the palm oil industry reflects the rapid expansion of oil palm plantings in Malaysia and Indonesia. During the late fifties, about two-thirds of the world's palm oil output was produced in Africa: two countries, Nigeria and Zaire, then supplied more than half of the world's palm oil. Although still major producers, the combined share of these countries in the output of palm oil dropped by 1974 to about 30 percent, slightly less than Malaysia's share. 4/ From 1965-69 to 1970-74, Malaysia's production of palm oil grew at an average annual rate of 25 percent (Table 7, Annex 1). 5/

1/ This statement refers mainly to palm oil produced on estates. The supply from independent smallholders working at the fringe of oil palm estates or collecting fruit in wild groves is more price-elastic: These producers have usually a wider range of employment opportunities than producers on smallholder estates, and they are also less concerned about the danger of plant diseases caused by rotting fruits.

2/ Variable costs include the cost of picking the fresh fruit bunches, the cost of transporting them to the processing plant and the cost of palm oil extraction.

3/ Intercropping is only possible during the first two years before the canopy of the oil palm closes. Lack of sunlight makes intercropping after that impossible.

4/ Civil disorders were a major factor behind the decline in palm oil production in these two countries. Production was disrupted in 1964-67 in Zaire and in 1967-69 in Nigeria.

5/ See Chart 2.

Though Malaysia is now the world's leading producer of palm oil, the decline in West African palm oil production has recently been reversed, as rising per capita demand for fats and oils has led to large investments in oil palm in several West African countries.

28. World output of palm oil is expected to grow at an average rate of 9.5 percent a year during the period 1975-80. Most of this expansion is the result of plantings of the sixties, which are now reaching maturity, and of improved yields. The real price of palm oil is projected to remain around its current low level. Although this price is still well above the production costs of efficient producers, it will be less than satisfactory for marginal producers (independent smallholders and producers from wild groves). Continued low palm oil prices and a strengthening of the markets for natural rubber, which competes for land with oil palms in southeast Asian producing countries, could slow the pace at which Malaysia and Indonesia expand their oil palm acreage in the latter part of the forecasting period. Overall, palm oil production is likely to expand at a slower rate (5.1 percent a year) between 1980 and 1985.

29. Malaysia will account for a major part of the future increase in output because of its extensive recent plantings of high-yielding varieties. These plantings covered 290 thousand hectares of land between 1961 and 1971, and there are plans to bring an additional 100 thousand hectares under oil palm during 1976-80. Malaysia's output may thus increase to between 2.2 million and 2.5 milion metric tons by 1980. By 1985, Malaysia's palm oil production is projected to reach between 3.9 million and 4.0 million tons.

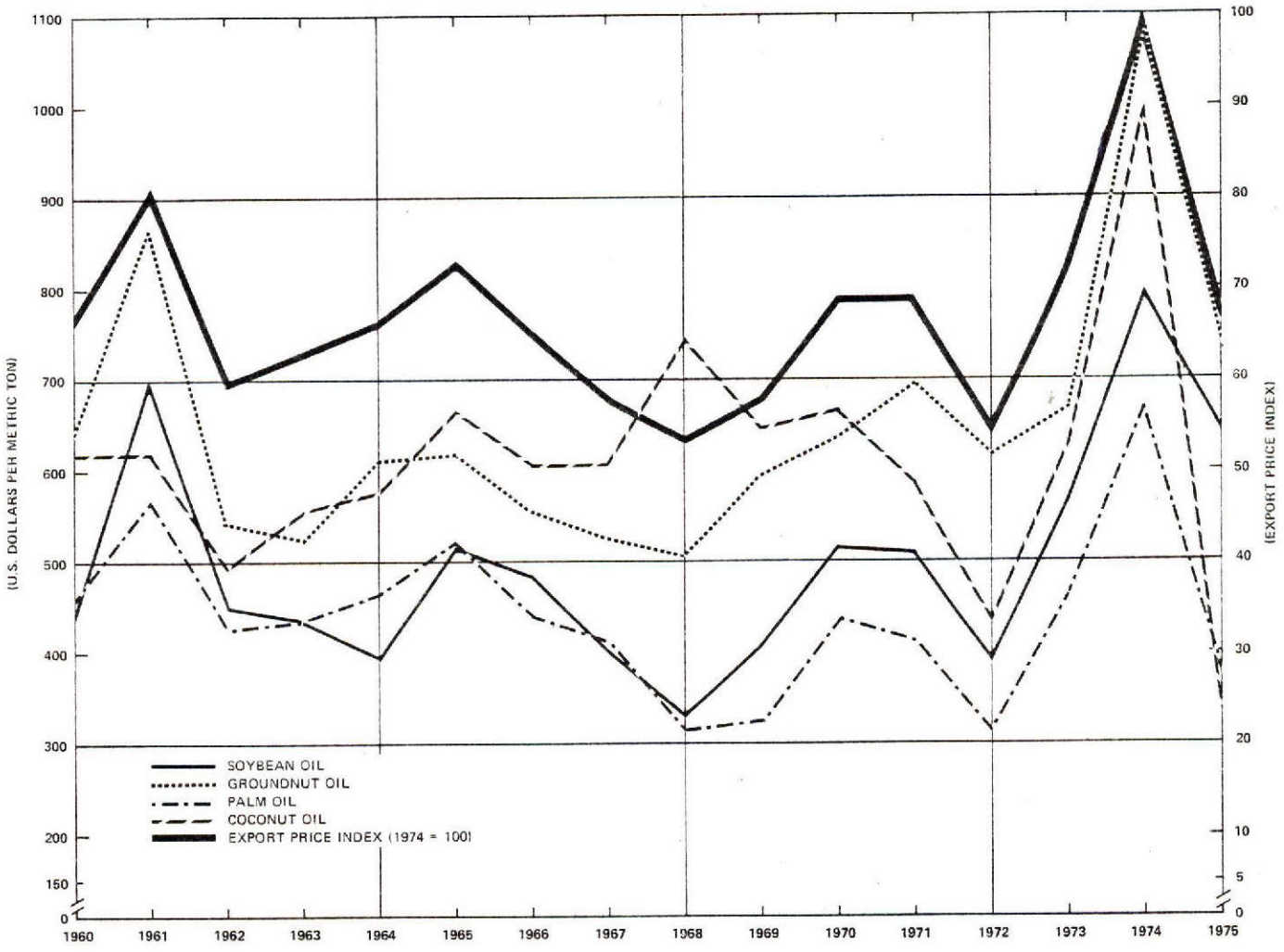
30. A smaller yet significant increase in output is expected in Indonesia, where new plantings amounted to 25 thousand hectares in 1961-71. Indonesia will have doubled its oilpalm acreage between 1972 and 1976. Current plans indicate a further expansion by 50 thousand hectares during 1976-80, with an equally important contribution to additional output from replantings and other forms of rehabilitation of old stands.

31. In West Africa, the Ivory Coast expanded the area under oil palm cultivation to 30 thousand hectares by 1974. During 1974-80, palm oil output is projected to increase by 85 percent. Nigeria is not expected to raise its palm oil production significantly between 1976 and 1980; for the remainder of the seventies output will remain at its current level of about 450 thousand tons. The Nigerian Government's plans for planting and replanting have not materialized thus far: 90 percent of Nigeria' output comes still from wild groves. As a result of aging trees and increasing difficulties in finding the necessary labor for maximum exploitation of the groves, Nigeria may become a net importer of palm oil by 1980.

32. World exports of palm oil followed roughly the expansion pattern of palm oil production (Charts 2 and 3); they grew at an average rate of 2.8 percent a year between 1960 and 1970, slightly below the 3.2 percent growth rate estimated for palm oil production. Towards the end of the sixties exports began to pick up, reaching an average annual growth rate of 18.5 percent between 1970 and 1975. Malaysia, Indonesia and the Ivory Coast accounted for most of the rapid expansion of palm oil exports.

CHART IV

PRICES AND EXPORT PRICE INDEX[1/] OF SELECTED FATS AND OILS, 1960–75
(IN CONSTANT 1974 U.S. DOLLARS PER METRIC TON)



1/ PRICES WEIGHTED BY CURRENT EXPORTS

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33. An increasing share of the palm oil produced in West African countries is consumed domestically. Between 1955 and 1974, palm oil exports from West African countries dropped by 60 percent. The drop was particularly evident in the case of Nigeria, whose market share fell from over 30 percent during the late fifties to less than one percent in 1974 (Chart 3). The decline in exports largely reflects the shortfall in Nigerian palm oil production during the civil war years and its slow recovery, paired with steadily rising domestic demand for edible oils.

34. Increasing consumption of palm oil in producing countries, mainly in Indonesia and West African countries, is expected to slow down the expansion of palm oil exports. We project that palm oil exports will grow at an average rate of 11 percent between 1975 and 1980; the growth rate will decline to 9 percent between 1980 and 1985. The share of palm oil in world trade of fats and oils will increase from 6.0 percent during 1967-69 to a size closely approaching that of soybean oil -- 17.5 percent in 1980 and 23 percent in 1985.

C. PRICES 1/

35. Although prices for fats and oils fluctuated widely during the past two decades (1955-75), they displayed no clear trend (Chart 4). Price fluctuations reflect simultaneous increases or shortfalls in production and exports of major fats and oils. They are usually related to changes in the normal weather pattern (typhoons that affect coconut harvesting in the Philippines, a drought that reduces soybean yields in the United States, etc.) The sudden increase of fats and oils prices during 1973-74 was mainly the result of simultaneous production shortfalls in coconut oil and groundnut oil.

36. We project a decline in real prices of fats and oils during 1975-80. The major assumptions underlying this projection are:

(a) An oversupply of fats and oils caused by:

(i) the rapid acreage expansion of oil-bearing tree crops in recent years; and

(ii) the growing demand for oilseed meals;

(b) A declining market potential for fats and oils in developed countries, where per capita consumption approaches the saturation level. Demand for fats and oils in these

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1/ In this section "price" of fats and oils refers to the weighted average price of fats and oils.

PRICE RATIOS AND RELATIVE EXPORTS OF
PALM OIL AND SOYBEAN OIL
1960--1975

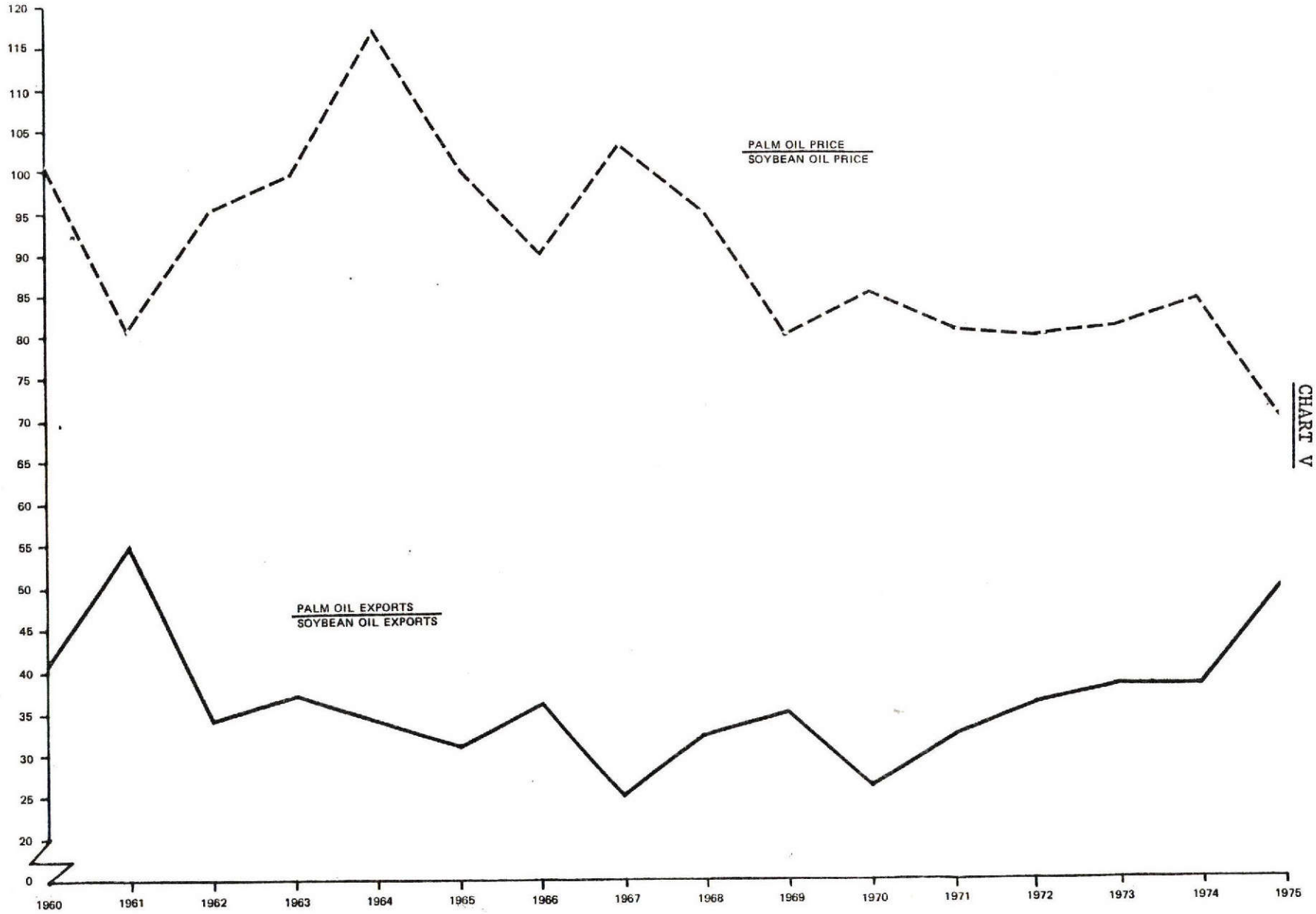

CHART V

countries is likely to come mainly from the development of new products or end-uses and population growth.

37. Prices of fats and oils during 1980-85 will depend largely on the capability of developing countries to absorb the projected increase in fats and oils supply. For this period, a slight rise in real fats and oils prices is projected, on the assumption that producers will reduce plantings in response to declining prices during the first half of the decade and that developing countries will absorb an increasing share of the total output of fats and oils.

38. Technological improvements in refining and manufacturing and the resulting increases in interchangeability of fats and oils have had three distinct effects on prices. First, prices have become more important in the manufacturer's choice of oils (or fats). Second, price differentials among fats and oils have declined. Third, the increased possibility of substitution has encouraged the use of cheaper oils, such as soybean oil and palm oil at the expense of high-priced oils such as butter and olive oil. This has tended to depress the general price level of high-priced oils.

39. The level of palm oil prices relative to those other fats and oils depends on the share of palm oil in total fats and oils exports. Chart 5 illustrates the effect of increasing palm oil exports (relative to soybean oil exports) on palm oil prices. The effect of increased supply on palm oil prices is aggravated by the fact that the market for soft oils expands faster than the market for hard oils (coconut oil, palm kernel oil, palm oil). Although it is physically possible to substitute hard oils for soft oils, the costs of dehydrogenation are high, and the rapidly growing output of hard oils can be marketed only at lower prices than those of soft oils. We project therefore a price differential of about 20 percent by 1985 between palm oil and its main competitor, soybean oil. Soybean oil prices (in 1974 constant US dollars) are projected at 395 US dollars per ton (CIF European ports) in 1985, whereas palm oil prices are projected at 320 US dollars for that year.

40. The declining trend of relative prices for palm oil (and other hard oils) could be reversed through: (a) a reduction in refining costs (easing the interchangeability of these oils with the soft oils in known end uses); and (b) the development of new end uses.

II. IMPLICATIONS FOR THE BANK GROUP

A. Past Lending for Oil Palm

41. During the past ten years (1965-75), the World Bank Group has participated in 22 oil palm projects, in nine countries: Benin, Cameroon, Ghana, Indonesia, Ivory Coast, Malaysia, Nigeria, Papua New Guinea, and Sierra Leone. Loans for these products totalled US$272 million. The

combined output of palm oil from these projects is estimated to reach 475 thousand tons by 1980, 700 thousand tons by 1985 and 745 thousand tons by 1990. (Annex I, Table 14). According to Bank staff projections the contribution of these projects to world palm oil supplies will be 10.3 percent in 1980 and 11.9 percent in 1985. 1/ Their impact on world fats and oils production is insignificant. Considering that the share of palm oil in the production of all fats and oils is projected at 8.7 percent in 1980 and 10.1 percent in 1985, the output from Bank-supported palm oil projects will add about 0.9 percent to total world supplies of fats and oils in 1980, and slightly more than 1 percent in 1985.

42. We estimate that about 30 percent of the combined output from these projects will be consumed in the countries of origin, and the remaining 70 percent will enter world trade. The proportions vary between countries. Most of the palm oil produced from the projects in West Africa is consumed domestically, while the bulk of output from those in South Asia countries is exported. New oil palm projects in the latter region would have a greater effect on the international market than new undertakings elsewhere.

B. Bank Investment Policy for Oil Palm Projects

Economic Rate of Return

43. Projected yields and prices of palm oil and palm kernels are the main elements in assessing the economic benefits of an oil palm project. In the past, expected economic rates of return of oil palm projects supported by the World Bank Group were as high as 17 percent in West African countries and between 16 and 20 percent in Malaysia and Indonesia. Oil palm projects will continue to be profitable: First, because increasing oil palm yields will compensate for declining palm oil prices. Even a decline in palm oil prices below the level projected above will not reduce benefits if high-yielding oil palm selections are planted. Second, because palm oil has the lowest production costs among fats and oils.

44. About 70 percent of all Bank-supported oil palm projects have involved production by small farmers. Palm oil is the main source of cash income for most of these families and it enables them to participate more fully in the market economy. For many areas in the tropics oil palm will remain a more remunerative crop than the alternatives which land and climate will permit.

1/ The corresponding share for 1975 was 4.3 percent.

45. Domestic consumption has claimed and will continue to claim an increasing share of the palm oil output in West African countries. Several traditional palm oil export countries (Nigeria and Zaire) may have to import palm oil in the future. Further expansion of the palm oil industry in these coutries would raise the per capita supply of fats and oils (and thereby improve nutrition), and reduce the need fo finance consumption from foreign exchange.

Recommendation

46. We have argued that investment in oil palm will remain profitable. Thus we expect that private investors and, in some countries, government agencies, will continue to finance oil palm projects. We suggest therefore that the Bank limit its lending to oil palm projects which either:

(a) directly aid low income producers 1/, or

(b) reduce foreign exchange expenditures for fats and oils imports of countries in which domestic supplies will be insufficient to meet their growing demand.

1/ See: Rural Development and Bank Policies: A Progress Report, IBRD Report No. 558.

ANNEX I: STATISTICAL TABLES

1. World Production of Selected Oilseeds, Fats and Oils (Fat or Oil Equivalent), Actual 1960, Average 1967-69, 1975 Projected 1980 and 1985

2. World Exports of Selected Oilseeds, Fats and Oils (Fat or Oil Equivalent), Actual 1960, Average 1967-69, 1975 Projected 1980 and 1985

3. Prices and Price Index of Selected Fats and Oils, cif Europe, 1960-1980 and 1985 (In US dollars per metric ton)

4. Prices and Price Index of Selected Fats and Oils, cif Europe, 1960-1980 and 1985 (In constant US dollars per metric ton)

5. Average Price Ratios of Selected Fats/Oils and Soybean, Trend Analysis

6. Correlation Matrix of Prices for Selected Fats and Oils

7. Palm Oil Production in Major Producing Countries, Five-Year Averages and Percentage Shares 1955-74

8. Palm Oil World Exports in Major Producing Countries, Five-Year Averages and Percentage Shares, 1955-74

9. Palm Oil Imports by Major Importing Countries, Five-Year Averages and Percentage Shares

10. Oil Palm Yields

11. Production Costs on a 10,000-Acre Oil Palm Estate

12. Some Technical Characteristics of Fats and Oils

13. Palm Oil Projects in FY 1976-78 Lending Program

14. World Bank Financing of Palm Oil on Development FY1965-75

Table 1 : WORLD PRODUCTION OF SELECTED OILSEEDS, FATS AND OILS (FAT OR OIL EQUIVALENT), ACTUAL 1960, AVERAGE 1967-69, 1975 PROJECTED 1980 AND 1985

(In 1000 Metric Tons)

	1960		1967-69		1975		1980		1985	
Fat/Oil	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share
Soybean Oil	3,295	12.3	5,358	15.5	8,550	19.2	11,900	22.4	13,500	23.2
Sunflowerseed Oil	1,665	6.2	3,652	10.5	4,070	9.2	5,200	9.8	5,400	9.3
Cottonseed Oil	2,165	8.1	2,310	6.7	3,005	6.8	3,400	6.4	3,700	6.4
Groundnut Oil	2,555	9.6	3,248	9.4	3,245	7.3	3,600	6.8	3,800	6.5
Rapeseed Oil	1,105	4.1	1,655	4.8	2,495	5.6	2,800	5.3	3,000	5.2
Olive Oil	1,180	4.4	1,307	3.8	1,500	3.4	1,600	3.0	1,700	2.9
Palm Oil	1,250	4.7	1,382	4.0	2,925	6.6	4,600	8.7	5,900	10.1
Coconut Oil	1,955	7.3	2,072	5.9	2,515	5.7	3,000	5.6	3,200	5.5
Palm Kernel Oil	440	1.7	383	1.1	695	1.6	900	1.7	1,000	1.7
Fish Oil	462	1.7	1,058	3.0	1,250	2.8	1,300	2.4	1,400	2.4
Butter	3,855	14.4	4,017	11.6	5,135	11.5	5,300	10.0	5,500	9.4
Tallow	3,050	11.4	4,228	12.2	5,085	11.4	5,500	10.2	5,900	10.1
Lard	3,733	14.1	3,988	11.5	3,950	8.9	4,100	7.7	4,300	7.3
TOTAL	26,710	100.0	34,658	100.0	44,420	100.0	53,200	100.0	58,300	100.0

Sources: USDA: 1960-69
IBRD: 1975-85

Table 2: WORLD EXPORTS OF SELECTED OILSEEDS, FATS AND OILS (FAT OR OIL EQUIVALENT), ACTUAL 1960, AVERAGE 1967-69, 1975 PROJECTED 1980 AND 1985

(In 1000 metric tons)

Fat/Oil	1960		1967-69		1975		1980		1985	
	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share
Soybean Oil	1,400	19.8	1,991	19.8	3,565	27.1	4,900	28.0	5,700	27.8
Sunflowerseed Oil	245	3.3	1,138	11.3	765	5.8	1,250	7.2	1,300	6.3
Cottonseed Oil	294	4.1	226	2.3	425	3.2	460	2.6	510	2.5
Groundnut Oil	826	11.4	1,037	10.3	745	5.7	940	5.4	950	4.6
Rapeseed Oil	92	1.3	439	4.4	745	5.7	920	5.3	1,020	5.0
Olive Oil	69	1.0	82	0.8	63	0.5	100	0.6	110	0.6
Palm Oil	587	8.1	607	6.0	1,800	13.7	3,050	17.5	4,690	22.9
Coconut Oil	1,152	15.9	1,182	11.8	1,425	10.8	1,650	9.4	1,750	8.5
Palm Kernel Oil	407	5.6	299	3.0	396	3.0	420	2.4	435	2.1
Fish Oil	222	3.1	672	7.7	600	4.6	740	4.2	790	3.9
Butter	426	5.9	514	5.1	717	5.5	790	4.5	830	4.1
Tallow	1,076	14.9	1,447	14.4	1,400	10.7	1,820	10.4	1,950	9.5
Lard	407	5.6	409	4.1	490	3.7	440	2.5	460	2.2
TOTAL	7,243	100.0	10,043	100.0	13,136	100.0	17,480	100.0	20,495	100.0

Sources: USDA: 1960-69
IBRD: 1975-85

Table 3: PRICES AND PRICE INDEX OF SELECTED FATS AND OILS 1/ CIF EUROPE, 1960-1980 AND 1985

(In US dollars per metric ton)

Year	Soybean	Sunflower	Cottonseed	Groundnut	Rapeseed	Olive	Palm	Coconut	Palm Kernel	Fish	Lard	Butter	Tallow	Price Index
1960	225	243	235	326	219	585	228	312	317	155	214	851	142	33.5
61	287	311	305	331	280	561	232	254	263	139	225	706	158	33.1
62	227	246	266	275	221	631	216	251	255	104	218	822	137	30.5
63	223	236	243	268	215	871	222	286	287	160	216	900	141	32.3
64	205	255	250	315	252	586	240	297	299	203	251	931	168	34.1
1965	270	294	278	324	263	663	273	348	353	217	293	918	200	38.2
66	261	263	333	296	244	661	236	324	271	196	282	833	180	34.9
67	216	212	378	283	206	690	224	328	249	127	205	817	144	31.2
68	178	172	305	271	161	681	169	399	367	99	169	709	129	28.6
69	228	213	291	332	200	666	181	361	306	150	216	709	166	32.2
1970	307	331	354	379	293	699	260	397	429	248	271	733	202	41.0
71	323	375	392	441	295	727	261	371	335	221	262	1,048	196	43.6
72	270	326	324	426	232	916	217	234	244	182	251	1,209	179	37.3
73	465	480	500	546	395	1,399	378	513	491	342	373	975	356	59.1
74	795	983	939	1,077	745	2,174	669	998	1,010	559	602	1,216	448	100.0
1975	619	739	726	857	551	2,436	433	393	439	344	479	1,669	340	75.5
76	376	600	645	675	390	2,350	370	340	360	330	410	1,760	380	62.4
77	416	615	648	714	416	2,168	397	403	423	337	383	1,719	370	64.5
78	464	628	650	755	450	2,000	433	485	485	343	428	1,670	371	68.0
79	514	721	644	796	476	1,833	471	583	568	353	460	1,626	376	72.6
1980	568	689	640	836	506	1,675	509	693	657	361	509	1,568	361	76.3
1985	910	1,013	1,130	1,320	835	2,790	737	1,094	1,060	610	795	2,556	592	120.2

1/ Descriptions:

Soybean Oil: Crude, US, CIF Rotterdam.
Sunflower Oil: Any origin, ex-tank Rotterdam.
Cottonseed Oil: US, PBSY, CIF Rotterdam.
Groundnut Oil: Nigerian/Gambian/Any Origin, CIF Europe.
Rapeseed Oil: Dutch, FOB ex-mill.
Olive Oil: Spanish, edible, 1% drums.
Palm Oil: Malaysian, 5%, CIF UK.

Price Index weighted by current world exports (1974=100).

Coconut Oil: Philippines/Indonesian, bulk, CIF Rotterdam. For 1973, Dutch, 5%, ex-mill; prior to 1973, White Ceylon, 1%, bulk, ex-tank Rotterdam.
Palm Kernel Oil: West African, CIF UK.
Fish Oil: Any origin, crude, CIF Europe. Prior to March 1973, Peruvian, semi-refined.
Lard: EEC refining quality, CIF UK. Prior to February 1973, US, Prime Steam, CIF UK.
Butter: Dutch, bulk, unsalted, UK markets.
Tallow: US, bulk, bleachable fancy, CIF Rotterdam.

1975 1980 1985

Palm/Soybean 0.70 0.696 0.81

Table 4: PRICES AND PRICE INDEX OF SELECTED FATS AND OILS 1/ CIF EUROPE, 1960-1980 AND 1985

(In constant US dollars per metric ton)

Year	Soybean	Sunflower	Cottonseed	Groundnut	Rapeseed	Olive	Palm	Coconut	Palm Kernel	Fish	Lard	Butter	Tallow	Price Index
1960	444.9	480.5	464.7	644.7	433.1	1,156.8	450.9	617.0	626.9	306.5	423.2	1,682.8	280.8	66.3
61	699.3	757.8	743.2	806.5	682.3	1,367.0	565.3	618.9	640.8	338.7	548.2	1,720.3	385.0	80.8
62	445.8	483.1	522.4	540.1	434.0	1,239.2	424.2	492.9	500.8	204.2	428.1	1,614.3	269.0	59.8
63	434.9	460.2	473.9	522.6	419.3	1,698.5	432.9	557.7	559.7	312.0	421.2	1,755.1	275.0	62.9
64	397.0	493.8	484.1	610.0	488.0	1,134.8	464.8	575.1	579.0	393.1	486.1	1,802.9	325.3	66.1
1965	515.1	560.9	530.3	618.1	501.7	1,264.8	520.8	663.9	673.4	414.0	558.9	1,751.2	381.5	72.9
66	486.8	490.6	621.2	552.1	455.1	1,233.0	440.2	604.4	505.5	365.6	526.0	1,553.8	335.8	65.0
67	399.8	392.4	699.6	523.8	381.3	1,277.1	414.6	607.1	460.9	235.1	379.4	1,512.1	266.5	57.8
68	331.3	320.1	567.7	504.4	299.6	1,267.4	314.5	742.6	683.0	184.3	314.5	1,319.6	240.1	53.2
69	409.0	382.1	522.0	595.5	358.7	1,194.6	324.7	647.5	548.9	269.1	387.4	1,271.7	297.8	57.7
1970	514.8	555.1	593.7	635.6	491.4	1,172.2	436.0	665.8	719.4	415.9	454.5	1,229.2	338.8	68.7
71	510.0	592.1	619.0	696.4	465.8	1,148.0	412.1	585.8	529.0	349.0	413.7	1,654.8	309.5	68.8
72	392.0	473.4	470.5	618.6	336.9	1,330.0	315.1	339.8	354.3	264.3	364.5	1,755.5	259.9	54.1
73	569.2	587.6	612.1	668.4	483.5	1,712.0	462.7	628.0	601.1	418.7	456.6	1,193.5	435.8	72.3
74	795.0	983.0	939.0	1,077.0	745.0	2,174.0	669.0	998.0	1,010.0	559.0	602.0	1,216.0	448.0	100.0
1975	540.7	645.5	634.1	748.5	481.3	2,127.7	378.2	343.3	383.4	300.5	418.4	1,457.8	297.0	66.0
76	308.3	492.0	528.9	553.6	319.8	1,927.2	303.4	278.8	295.2	270.6	336.2	1,443.3	311.6	51.2
77	314.7	465.2	490.2	540.1	314.7	1,639.9	300.3	304.8	320.0	254.9	289.7	1,300.3	279.9	48
78	325.0	439.9	455.3	528.9	315.2	1,401.1	303.3	339.8	339.8	240.3	299.8	1,169.9	259.9	47.6
79	335.0	470.0	419.8	518.8	310.3	1,194.8	307.0	380.0	370.2	230.1	299.8	1,059.8	245.1	47.3
1980	345.9	419.6	389.7	509.1	308.1	1,020.0	310.0	422.0	400.1	219.8	310.0	954.8	219.8	46.5
1985	395.2	439.9	490.7	573.2	362.6	1,211.5	320.0	475.1	460.3	264.9	345.0	1,109.9	257.1	52.2

1/ Descriptions:

Soybean Oil: Crude, US, CIF Rotterdam.
Sunflower Oil: Any origin, ex-tank Rotterdam.
Cottonseed Oil: US, PBSY, CIF Rotterdam.
Groundnut Oil: Nigerian/Gambian/Any Origin, CIF Europe.
Rapeseed Oil: Dutch, FOB ex-mill.
Olive Oil: Spanish, edible, 1% drums.
Palm Oil: Malaysian, 5% CIF UK.

Price Index weighted by constant world exports (1974-100).

Coconut Oil: Philippines/Indonesian, bulk, CIF Rotterdam. For 1973, Dutch, 5%, ex-mill; prior to 1973, White Ceylon, 1% bulk, ex-tank Rotterdam.
Palm Kernel Oil: West African, CIF UK.
Fish Oil: Any origin, crude, CIF Europe. Prior to March 1973, Peruvian, semi-refined.
Lard: EEC refining quality, CIF UK. Prior to February 1973, US, Prime Steam, CIF UK.
Butter: Dutch, bulk, unsalted, UK markets.
Tallow: US, bulk, bleachable fancy, CIF Rotterdam.

Table 5: AVERAGE PRICE RATIOS OF SELECTED FATS/OILS AND SOYBEAN, TREND ANALYSIS

	Averages		Trend Analysis			
	1955-64	1965-75	Intercept	Slope	t-Value	R^2
Sunflower	109	108	104.71	0.35	1.13	0.06
Groundnut	122	134	111.35	1.47	2.89	0.31
Cotton seed	108	128	103.44	1.33	1.91	0.16
Rape seed	104	91	108.96	-1.05	3.91	0.45
Olive	265	296	238.26	3.91	2.06	0.18
Palm	93	86	94.87	-0.48	1.13	0.06
Coconut	115	129	116.38	0.54	0.41	0.01
Palm kernel	115	121	113.94	0.36	0.31	0.01
Fish	65	68	63.76	0.29	0.68	0.02
Butter	336	308	344.92	-2.15	0.73	0.03
Tallow	64	67	64.38	0.12	0.40	0.01
Lard	101	91	110.07	-1.31	3.18	0.35

Source: Computed from prices in Table 3.

Table 6: CORRELATION MATRIX OF PRICES FOR SELECTED FATS AND OILS

Fat/Oil	Sun-flower	Ground-nut	Cotton-seed	Rape-seed	Olive	Palm	Coco-nut	Palm Kernel	Fish	Butter	Tallow	Lard
Soybean	.99	.97	.96	.98	.92	.97	.79	.84	.95	.69	.96	.94
Sunflower		.98	.96	.98	.92	.97	.80	.85	.95	.71	.94	.93
Groundnut			.97	.94	.94	.95	.81	.85	.93	.74	.93	.89
Cottonseed				.92	.93	.94	.84	.85	.91	.66	.92	.87
Rapeseed					.88	.95	.76	.81	.93	.63	.92	.97
Olive						.86	.66	.71	.83	.81	.88	.85
Palm							.88	.92	.97	.62	.95	.91
Coconut								.98	.86	.32	.82	.69
Palm Kernel									.90	.39	.85	.74
Fish										.60	.97	.91
Butter											.62	.63
Tallow												.91

Source: Computed from prices shown in Table 3.

Table 7: PALM OIL PRODUCTION IN MAJOR PRODUCING COUNTRIES, FIVE-YEAR AVERAGES AND PERCENTAGE SHARES 1955-74 1/

Country	1955-59		1960-64		1965-69		1970-74	
	1000 MT	Percent	1000 MT	Percent	1000 MT	Percent	1000 MT	Percent
Western Africa	536.06	46.69	763.64	59.93	750.98	53.88	995.23	43.02
Nigeria	433.28	37.74	497.98	39.09	431.60	30.96	533.40	23.06
Ghana	-		32.20	2.53	49.20	3.53	61.00	2.64
Liberia	39.94	3.48	40.48	3.18	41.20	2.96	7.00	0.30
Sierra Leone	-		36.20	2.84	41.40	2.97	58.00	2.51
Dahomey	13.80	1.20	38.80	3.05	32.92	2.36	42.60	1.84
Ivory Coast	7.06	0.61	22.86	1.79	30.50	2.19	91.48	3.95
Togo	1.38	0.12	0.66	0.05	2.80	0.20	4.70	0.20
Cameroon	18.50	1.61	38.64	3.03	48.36	3.47	57.60	2.49
Cent.African Rep.	0.14	0.01	0.88	0.07	0.64	0.05	0.50	0.02
Congo, PR	2.90	0.25	6.62	0.52	6.18	0.44	6.14	0.27
Eq. Guinea	2.28	0.20	3.12	0.24	3.96	0.28	4.16	0.18
Gabon	-		-		1.56	0.11	2.48	0.11
Gambia	0.42	0.04	1.42	0.11	2.08	0.15	2.02	0.09
Guinea	-		8.80	0.69	13.80	0.99	40.56	1.75
Guinea-Bissau	-		6.40	0.50	8.00	0.57	8.00	0.35
São Tome/Principe	2.26	0.20	1.78	0.14	1.18	0.08	0.99	0.04
Angola	14.10	1.23	26.80	2.10	35.60	2.55	74.60	3.22
Eastern Africa	225.80	19.67	225.04	17.67	172.58	12.38	182.82	7.90
Tanzania	0.10	0.01	0.32	0.03	0.78	0.06	1.64	0.07
Burundi	1.42	0.12	1.00	0.08	1.00	0.07	1.00	0.04
Zaire	224.28	19.54	223.72	17.56	170.80	12.25	180.18	7.79
Latin America - Caribbean	17.56	1.53	27.67	2.18	53.48	3.84	92.16	3.98
Brazil	-		1.28	0.10	10.22	0.73	6.78	0.29
Colombia	-		0.01	0.00	9.72	0.70	38.62	1.67
Costa Rica	3.36	0.29	6.00	0.47	10.00	0.72	14.44	0.62
Ecuador	-		0.46	0.04	2.52	0.18	6.00	0.26
Honduras	-		1.12	0.09	1.40	0.10	7.28	0.32
Mexico	11.92	1.04	13.36	1.05	13.00	0.93	11.32	0.49
Paraguay	0.78	0.07	3.94	0.31	5.12	0.37	7.72	0.33
Venezuela	1.50	0.13	1.50	0.12	1.50	0.11		
East Asia - Pacific	218.64	19.05	256.00	20.10	416.86	29.90	1,043.31	45.10
China Rep.	-		-		-		40.00	1.73
Indonesia	155.22	13.52	147.52	11.58	176.42	12.65	273.72	11.84
Malaysia	63.42	5.53	108.48	8.52	240.44	17.25	728.10	31.47
Philippines	-		-		-		1.49	0.06
Others	149.94	13.06	1.47	0.12				
World Total	1,148.00	100.00	1,273.82	100.00	1,393.90	100.00	2,313.52	100.00

1/ Production data for 1974 and 1975: IBRD estimate.
Source: FAO

Table 8: PALM OIL WORLD EXPORTS IN MAJOR PRODUCING COUNTRIES, FIVE-YEAR AVERAGES AND PERCENTAGE SHARES, 1955-74 1/

Country	1955-59 1000 MT	1955-59 Percent	1960-64 1000 MT	1960-64 Percent	1965-69 1000 MT	1965-69 Percent	1970-74 1000 MT	1970-74 Percent
WESTERN AFRICA	212.46	36.76	191.67	31.30	105.45	14.96	86.02	6.38
Nigeria	180.40	31.21	147.64	24.11	65.23	9.25	5.96	.44
Ghana			.06	.00	.30	.04	-	
Liberia	.02						.23	.01
Sierra Leone	.62	.11					-	
Dahomey	12.64	2.19	11.61	1.89	10.86	1.54	11.65	.86
Ivory Coast	1.14	.20	.88	.14	.92	.13	48.90	3.62
Togo	.66	.11	.43	.07	0.09	.01	1.09	.08
Cameroon	.46	.09	8.26	1.34	8.42	1.19	7.35	.54
Cent. Afr. Rep.	.01		.01	.00	0.00	.00	.00	.00
Congo, Peo. Rep.	2.98	.52	3.31	.54	0.66	.09	-	
Ec. Guinea	2.81	.49	2.91	.47	5.03	.42	3.00	.22
Gabon			.09	.01	1.07	.15	.22	.01
Gambia								
Guinea								
Guinea-Bassau	.60	.10	.07	.01	0.08	.01	.08	.00
Sao Tome/Principe	1.33	.23	.95	.15	0.54	.07	.19	.01
Angola	8.79	1.52	15.45	2.52	13.44	1.90	7.35	.54
EASTERN AFRICA	160.53	27.78	148.87	24.31	114.24	16.21	89.98	6.67
Tanzania			.08	.01	0.05	.00	.01	.00
Burundi							-	
Zaire	160.53	27.78	148.79	24.30	114.19	16.20	89.97	6.67
LATIN AMERICA-CARIBBEAN	.16	.03	2.28	.37	3.67	.52	5.22	.38
Brazil								
Colombia								
Costa Rica	.01		0.39	.06	.17	.02	.19	.01
Equador								
Honduras	.15	.03	.14	.02	0.83	.11	.49	.03
Mexico								
Paraguay			1.75	.28	2.67	.37	4.54	.33
Venezuela								
EAST ASIA-PACIFIC	198.33	32.58	222.31	36.31	385.44	54.69	903.67	67.05
China Rep.								
Indonesia	121.17	20.96	113.88	18.60	153.56	21.78	229.70	17.04
Malaysia	67.16	11.62	108.43	17.71	231.88	32.90	673.97	50.00
Philippines								
EMENA			0.09	.01			.67	.04
Bahrain							.00	.00
Lebanon							.00	.00
Portugal			..				.67	.04
Spain			0.09	.01				
Syrian Arab Rep.								
OTHERS	16.47	2.85	47.01	7.67	95.93	13.61	262.15	19.45
Austria							-	
Belgium-Luxembourg	6.81	1.18	7.73	1.26	4.96	.70	2.72	.20
Czechoslovakia	.47	.08					-	
Denmark	.04	.01	.07	.01	1.59	.22	.10	.00
France	.72	.12	1.65	.26	.65	.09	1.47	.10
Germany, FR	2.84	.49	3.12	.50	3.54	.50	7.24	.53
Hong Kong	.04	.01					-	
India	.02						.00	.00
Italy			0.10	.01	.14	.01	.61	.04
Japan			.18	.02	.11	.01	.43	.03
Mali							-	
Netherlands	4.38	.76	5.45	.89	10.00	1.41	47.40	3.51
Nicaragua			.24	.03			-	
Niger	.04	.01					-	
Norway							-	
Papua-New Guinea							4.33	.32
Singapore			27.02	4.41	74.15	10.52	196.43	14.57
Sweden	.67	.11	.28	.04	.16	.02	.54	.04
Uganda			.37	.06	.33	.04	.05	.00
United Kingdom	.44	.08	.80	.13	.30	.04	.83	.06
WORLD TOTAL	577.95	100.00	612.23	100.00	704.73	100.00	1,347.71	100.00

1/ Palm Oil export data for 1974: IBRD estimate.

Source: FAO

Nigeria 6.38
Zaire 6.67
Indonesia 17.04
Malaysia 50.00
Singapore 14.57
94.66

Table 9: CONTINUED

Country	1955-59 1000 MT	1955-59 Percent	1960-64 1000 MT	1960-64 Percent	1965-69 1000 MT	1965-69 Percent	1970-74 1000 MT	1970-74 Percent
LAC	3.95	0.66	5.25	0.92	4.56	0.72	6.27	0.50
Argentina	0.43	0.07	0.26	0.04	0.05	0.00	0.05	0.00
Barbados	0.00	.00	0.00	.00	0.02	0.00	0.06	0.00
Brazil	0.41	0.06	0.00	.00	0.06	0.00	0.05	0.00
Chile	0.00	.00	0.42	0.07	1.43	0.22	0.02	0.00
Colombia	0.52	0.08	1.11	0.19	0.00	.00	0.00	.00
Costa Rica	0.02	0.00	1.08	0.18	1.61	0.25	0.46	0.03
Ecuador	1.33	0.22	1.51	0.26	0.94	0.14	5.39	0.43
El Salvador	0.00	.00	0.01	0.00	0.00	.00	0.00	.00
Guatemala	0.04	0.00	0.01	0.00	0.02	0.00	0.00	.00
Guyana	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Honduras	0.00	.00	0.29	0.05	0.00	.00	0.06	0.00
Jamaica	0.00	.00	0.02	0.00	0.00	.00	0.00	.00
Martinique	0.00	.00	0.00	.00	0.00	.00	0.01	0.00
Mexico	0.87	0.14	0.17	0.02	0.19	0.03	0.16	0.01
Nicaragua	0.00	.00	0.01	0.00	0.18	0.02	0.00	.00
Peru	0.00	.00	0.09	0.01	0.06	0.00	0.01	0.00
Trinidad	0.17	0.02	0.00	.00	0.00	.00	0.00	.00
Venezuela	0.16	0.02	0.27	0.04	0.00	.00	0.00	.00
OTHERS	532.52	90.13	478.28	84.11	521.97	82.51	941.59	75.45
Australia	0.39	0.06	2.49	0.43	2.96	0.46	10.01	0.80
Austria	2.59	0.43	1.28	0.22	0.19	0.03	3.24	0.25
Bel Lux	41.41	7.00	40.19	7.06	26.51	4.19	25.06	2.00
Canada	17.35	2.93	11.53	2.02	11.08	1.75	18.32	1.46
Denmark	12.04	2.03	3.84	0.67	1.58	0.24	8.56	0.68
Faeroes Isl.	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Finland	0.98	0.16	0.05	0.00	0.02	0.00	0.82	0.06
France	29.99	5.07	34.90	6.13	38.00	6.00	49.14	3.93
Germany FR	72.43	12.25	86.57	15.22	115.07	18.19	140.40	11.25
Iceland	0.00	.00	0.01	0.00	0.00	.00	0.00	.00
Ireland	3.13	0.52	4.14	0.72	3.16	0.49	4.25	0.34
Italy	15.52	2.62	27.59	4.85	38.18	6.03	51.71	4.14
Japan	19.77	3.34	15.30	2.69	25.70	4.06	70.35	5.63
Netherlands	80.80	13.67	74.50	13.10	69.32	10.95	137.56	11.02
New Zealand	0.00	.00	0.01	0.00	0.01	0.00	0.36	0.02
Norway	1.03	0.17	0.64	0.11	0.22	0.03	9.93	0.79
Portugal	9.73	1.64	14.29	2.51	15.48	2.44	18.85	1.51
S. Africa	0.98	0.16	0.00	0.00	0.11	0.01	0.97	0.07
Spain	3.40	0.57	0.22	0.03	2.39	0.37	5.70	0.45
Sweden	1.98	0.33	2.03	0.35	2.54	0.40	7.50	0.60
Switzerland	1.53	0.25	1.55	0.27	2.59	0.40	4.93	0.39
UK	197.05	33.35	136.70	24.04	122.85	19.42	212.13	16.99
US	15.01	2.54	15.25	2.68	37.15	5.87	147.86	11.84
Yugoslavia	0.70	0.11	1.11	0.19	1.31	0.20	0.14	0.01
China PR	0.06	0.01	0.03	0.00	0.32	0.05	0.00	.00
Cuba	0.07	0.01	0.00	0.00	0.00	.00	0.00	.00
Czechoslovakia	0.56	0.09	0.72	0.12	0.79	0.12	5.27	0.42
Hungary	3.09	0.52	1.04	0.18	0.54	0.08	0.12	0.00
Poland	0.93	0.15	1.08	0.18	1.84	0.29	8.41	0.67
USSR	0.00	.00	1.22	0.21	2.06	0.32	0.00	.00
WORLD TOTAL	590.81	100.00	568.57	100.00	632.59	100.00	1,247.88	100.00

US. 11.8
UK 17.0
Netherlands 11.0
Germany 11.3
Singapore 17.7
68.80

Table 9: PALM OIL IMPORTS BY MAJOR IMPORTING COUNTRIES, FIVE-YEAR AVERAGES AND PERCENTAGE SHARES

Country	1955-59 1000 MT	1955-59 Percent	1960-64 1000 MT	1960-64 Percent	1965-69 1000 MT	1965-69 Percent	1970-74 1000 MT	1970-74 Percent
EAST AFRICA	3.56	0.60	4.10	0.72	8.76	1.38	18.86	1.51
Kenya	1.52	0.25	1.76	0.30	5.94	0.93	13.36	1.07
Mozambique	0.00	.00	0.00	.00	0.50	0.07	0.88	0.07
Niger	0.00	.00	0.00	.00	0.05	0.00	0.18	0.01
Rhodesia	0.57	0.09	0.36	0.06	0.30	0.04	0.50	0.04
Sudan	1.15	0.19	0.16	0.02	0.07	0.01	0.05	0.00
Tanzania	0.04	0.00	0.06	0.01	0.41	0.06	1.56	0.12
Uganda	0.28	0.04	1.76	0.30	1.43	0.22	2.29	0.18
Zambia	0.00	.00	0.00	.00	0.06	0.00	0.04	0.00
WEST AFRICA	2.86	0.48	3.61	0.63	6.61	1.04	8.64	0.69
Angola	0.00	.00	0.06	0.01	0.34	0.05	0.05	0.00
Cameroon	0.57	0.09	0.15	0.02	0.78	0.12	0.04	0.00
Car	0.00	.00	0.19	0.03	0.93	0.14	1.56	0.12
Congo PR	0.00	.00	0.10	0.01	0.08	0.01	0.49	0.03
Dahomey	0.00	.00	0.00	.00	0.00	0.00	0.00	.00
Eq. Guinea	0.59	0.09	0.00	.00	0.00	.00	0.00	.00
Gabon	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Gambia	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Ghana	0.00	.00	0.21	0.03	1.45	0.22	3.78	0.30
Guinea	0.02	0.00	0.00	.00	0.00	.00	0.00	.00
Ivory Coast	0.90	0.15	2.55	0.44	1.94	0.30	0.00	.00
Liberea	0.00	.00	0.00	.00	0.04	0.00	0.00	.00
Mali	0.00	.00	0.17	0.02	0.12	0.01	0.75	0.06
Senegal	0.20	0.03	0.01	0.00	0.78	0.12	1.86	0.14
Sierra Leone	0.00	.00	0.02	0.00	0.12	0.01	0.11	0.00
Togo	0.58	0.09	0.15	0.02	0.03	0.00	0.00	.00
EAST ASIA AND PACIFIC	11.49	1.94	37.56	6.60	76.67	12.12	229.97	18.42
Khmer Rep.	0.19	0.03	0.00	.00	0.00	.00	0.00	0.00
China Rep.	0.08	0.01	0.00	.00	0.00	.00	1.62	0.12
Fiji	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Hong Kong	0.02	0.00	0.00	.00	0.00	.00	0.17	0.01
Korea Rep.	0.28	0.04	0.00	.00	0.14	0.02	1.03	0.08
Malaysia	5.84	0.98	3.98	0.70	0.12	0.01	1.37	0.10
Papua/NG	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Philippines	5.05	0.85	4.99	0.87	6.99	1.10	4.32	0.34
Singapore	0.00	.00	28.54	5.01	69.34	10.96	221.36	17.73
Thailand	0.03	0.00	0.05	0.00	0.08	0.01	0.10	0.00
SOUTH ASIA	26.97	4.56	34.13	6.00	8.39	1.32	33.70	2.70
Bangladesh	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Burma	.09	0.01	0.00	.00	0.00	.00	0.00	.00
Sri Lanka	0.00	.00	0.00	.00	0.75	0.11	0.50	0.04
India	17.42	2.94	34.13	6.00	5.52	0.87	23.27	1.86
Pakistan	0.00	.00	0.00	.00	2.12	0.33	9.93	0.79
EMENA	9.46	1.60	5.64	0.99	5.63	0.88	8.85	0.70
Algeria	1.87	0.31	0.65	0.11	0.72	0.11	1.00	0.08
Bahrain	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Cyprus	0.00	.00	0.00	.00	0.00	.00	0.06	0.00
Iran	3.21	0.54	0.00	.00	0.00	.00	0.00	.00
Israel	0.12	0.02	0.37	0.06	0.78	0.12	1.08	0.08
Jordan	0.13	0.02	0.72	0.12	1.94	0.30	3.13	0.25
Kuwait	0.00	.00	0.06	0.01	0.03	0.00	0.00	.00
Lebanon	0.08	0.01	0.13	0.02	0.11	0.01	0.07	0.00
Libyan AR	0.00	.00	0.01	0.00	0.06	0.00	0.12	0.00
Malta	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Morrocco	0.41	0.06	0.27	0.04	0.06	0.00	0.00	.00
Syrian	3.51	0.59	3.40	0.59	1.92	0.30	3.39	0.27
Turkey	0.00	.00	0.00	.00	0.01	0.00	0.00	.00
UAR	0.13	0.02	0.03	0.00	0.00	.00	0.00	.00

Table 10: OIL PALM YIELDS*

Age of Tree Years after Planting	FFB (MT/acre)	Oil in FFB (Percent)	Oil (MT/acre)	Kernel in FFB (Percent)	Kernel (MT/acre)	Palm Kernel Oil 1/ (MT/acre)	Total Oil (MT/acre)	Palm Kernel Cake 2/ (MT/acre)
3	2.40	15.00	0.360	3.6	0.086	0.040	0.400	0.042
4	4.80	16.50	0.792	3.9	0.187	0.088	0.880	0.091
5	7.75	17.75	1.376	4.2	0.326	0.153	1.702	0.158
6	8.95	19.25	1.723	4.5	0.403	0.191	1.914	0.195
7	10.00	20.00	2.000	4.5	0.450	0.222	2.222	0.218
8	10.50	21.50	2.258	4.5	0.473	0.251	2.509	0.229
9	10.50	22.00	2.310	4.5	0.473	0.257	2.567	0.229
10	10.30	22.00	2.266	4.5	0.464	0.252	2.518	0.225
11	10.10	22.00	2.222	4.5	0.455	0.247	2.469	0.221
12	9.90	22.00	2.178	4.5	0.446	0.242	2.420	0.216
13	9.70	22.00	2.134	4.5	0.437	0.237	2.371	0.212
14	9.50	22.00	2.090	4.5	0.428	0.232	2.322	0.208
15	9.30	22.00	2.046	4.5	0.419	0.227	2.273	0.203
16	9.10	22.00	2.002	4.5	0.410	0.222	2.224	0.199
17	8.90	22.00	1.958	4.5	0.401	0.218	2.176	0.195
18	8.70	22.00	1.914	4.5	0.392	0.213	2.127	0.190
19	8.50	22.00	1.870	4.5	0.383	0.208	2.078	0.186
20	8.30	22.00	1.826	4.5	0.374	0.203	2.029	0.181
21	8.10	22.00	1.782	4.5	0.365	0.198	1.980	0.177
22	7.90	22.00	1.738	4.5	0.356	0.193	1.931	0.172
23	7.70	22.00	1.694	4.5	0.347	0.188	1.882	0.168
24	7.50	22.00	1.650	4.5	0.338	0.183	1.833	0.164
25	7.30	22.00	1.606	4.5	0.329	0.178	1.784	0.160

* Yields are based on estates planted with higher yielding varieties (D by P palms), 60 palms per acre.

1/ Assuming a ratio of palm oil to palm kernel oil of 90:10.

2/ Assuming a yield of 48.5 tons of cake per 100 MT of palm kernels.

Source: IBRD

Table 11: PRODUCTION COSTS ON A 10,000-ACRE OIL PALM ESTATE

	U.S. dollars
Cost of estate to maturity	4,400,000
Cost of road collection system	680,000
Cost of oil mill (30 tons of F.F.B. per hour)	1,600,000
Cost of staff and workers' quarters	600,000
Cost of administrative centres	80,000
Total establishment cost	7,360,000
Annual cost of capital	
5 percent depreciation of US$5,200,000	260,000
10 percent depreciation on US$260,000 (buildings and machinery)	226,000
8 percent interest on US$7,360,000	588,800
Total	1,074,800
Cost per ton of oil	
Capital	68.00
Upkeep and cultivation	26.00
Harvesting and collection	22.00
Manufacture	8.00
General charges	38.00
Forwarding	6.80
Bulking installation	3.20
Tax (ad valorem US$200)	17.50
Total cost per ton of oil f.o.b.	189.50

Source: Technical and Economic Aspects of the Oil Palm Fruit Processing Industry, UNIDO.

Table 12: SOME TECHNICAL CHARACTERISTICS OF FATS AND OILS

Fat/Oil	Main Fatty Acid	Iodine Number	Solidification Point (Centigrade)
Soybean Oil	Linoleic	121-142	-18 to -8
Sunflower Oil	Linoleic	115-135	-19 to -16
Groundnut Oil	Oleic	84-105	-2 to 3
Cottonseed Oil	Linoleic	101-107	2 to 4
Rapeseed Oil	Linoleic	94-105	0
Olive Oil	Oleic	78-95	-9 to 0
Palm Oil	Stearic/Palmitic	44-56	24 to 30
Coconut Oil	Lauric	7-10	14 to 25
Palm kernel Oil	Lauric	16-23	19 to 30
Fish Oil	Linoleic	110-180	-4 to 24
Tallow	Stearic/Palmitic	45-55	30 to 38
Lard	Stearic/Palmitic	53-77	22 to 32

Source: IBRD

Table 13: PALM OIL PROJECTS IN FY 1976-78 LENDING PROGRAM /1

Financial Year	Country	Estimated Annual Yield at Full Production (Metric Tons)	
		Export	Local Consumption
1976	Papua New Guinea	40,000	-
1977	Ivory Coast	55,000	-
	Cameroon - Socapalm	14,000	-
	Indonesia - Smallholder	16,500	5,500
1978	Cameroon/Camdev	14,500	-
	Nigerin	-	12,000
	Zaire	-	100,000 /2

257.5

140.00

/1 In addition to each 1,000 tons of Palm Oil produced, about 100 tons of Palm-Kernel Oil are produced.

/2 Rehabilitation of existing plantations.

Table 1b:

WORLD BANK FINANCING OF PALM OIL ON DEVELOPMENT[1] FY1965-75

PROJECTS[2] / COUNTRY	FINANCIAL DATA: TOTAL PROJECTS COST[3] (US$Millions)	FINANCIAL DATA: AMOUNT OF LOAN/CREDIT[4] (US$Millions)	PURPOSE	PERIOD OVER WHICH PLANTINGS CARRIED OUT	AREA[5] (Thousand ha)	PALM OIL - ESTIMATED PROD.[6] 1970 (Thousand Metric Tons)	1975	1980	1985	1990	ESTIMATED MAX. ANNUAL PROD.[4]: YEAR	ESTIMATED MAX. ANNUAL PROD.[4]: (Thousand Metric Tons)	ESTIMATED SHARE OF PROD. AVAILABLE FOR EXPORT (Percentage)
CAMEROON													
West	22.2	9.0	PRODUCTION	1967-74	7.9	-	7.4	20.7	22.4	22.0	1984	22.4	30
East	22.0	9.6	PRODUCTION	1968-73	9.0	-	7.3	26.7	27.6	26.0	1981	27.6	22
DAHOMEY													
Hinvi	9.6	5.2	PRODUCTION& PROCESS	1968-70	6.0	-	4.3	10.1	9.0	9.0	1980	10.1	100
GHANA													
Oil Palm	22.5	13.6	PRODUCTION& PROCESS	1976-81	10.1	-	-	-	12.6	14.0	1990	14.0	-
INDONESIA													
1st North Sumatra	32.0	12.7	PRODUCTION& PROCESS	1969-73	13.7	0.3	18.4	68.5	68.0	67.0	1980	68.5	75-80
2nd North Sumatra	31.7	13.2	PRODUCTION& PROCESS	1970-74	8.0	-	9.5	39.8	42.0	40.0	1982	42.0	75-80
Ag. Estate Project	21.9	3.4	PRODUCTION& PROCESS	1973-78	7.4	-	-	-	-	28.0	1992	30.0	75
North Sumatra Devt. Project	10.0	2.5	PRODUCTION& PROCESS	1974-77	3.3	-	-	1.0	5.0	12.0	1990	12.0	75
IVORY COAST													
1st Oil Palm	29.1	17.1	PRODUCTION& PROCESS	1968-71	16.0	-	23.2	39.0	38.0	38.0	1979	39.0	50-60
2nd Oil Palm	17.6	2.6	PRODUCTION& PROCESS	1972-74	4.5	-	-	7.9	9.9	9.0	1982	9.9	100
3rd Oil Palm	10.8	2.6	PRODUCTION	1974-79	10.5	-	-	17.8	30.8	30.0	1984	30.8	50-60
MALAYSIA													
1st Jengka	29.1	9.5	PRODUCTION	1967-70	11.1	-	40.0	56.0	55.0	54.0	1981	57.0	100
2nd Jengka	38.0	8.6	PRODUCTION	1971-72	6.7	-	6.5	32.0	30.0	27.7	1982	33.0	100
3rd Jengka	49.8	15.0	PRODUCTION& PROCESS	1973-76	8.6			6.0	43.0	44.0	1987	47.0	100
Jehore Tenggara	89.8	40.0	PRODUCTION& PROCESS	1973-76	26.2			75.0	123.0	110.0	1985	123.0	100
Keratong Land Settlement	98.7	36.0	PRODUCTION	1973-77	22.3	-	-	45.0	90.0	90.0	1985	100.0	100
NIGERIA													
Western State	34.0	17.0	PRODUCTION	1976-80	10.0	-	-	0.6	17.8	25.3	1989	25.3	-
Eastern State	37.5	19.0	PRODUCTION& PROCESS	1976-80	16.0	-	-	0.8	23.3	35.2	1988	35.2	-
Mid Western State	58.8	29.5	PRODUCTION& PROCESS	1976-82	15.8	-	-	0.8	24.0	38.2	1991	38.4	-
PAPUA NEW GUINEA													
New Britain 1st Stage	3.3	1.5	PRODUCTION& PROCESS	1968-72	1.9	-	5.7	8.4	8.5	8.0	1981	8.5	100
New Britain 2nd Stage	3.9	2.2	PRODUCTION	1970-75	3.1	-	0.7	12.6	14.4	14.0	1984	14.4	100
SIERRA LEONE													
Oil Palm I	5.6	2.4	PRODUCTION& PROCESS	1973-75	0.9	-	2.1	4.3	4.3	4.0	1981	4.3	-
TOTAL	677.9	272.2			219.0	0.3	125.1	475.0	658.6	745.4		792.4	

1/ Estimates are made on projections as at the time of appraisal.
2/ Projects consist of some estate palm oil production. Principally they involve 'outgrower production;' with particular emphasis on smallholder development.
3/ This includes all project costs.
4/ Only includes oil palm portion of investment from IBRD /IDA Loan or Credit.
5/ Area and production figures include amounts resulting from rehabilitation of existing palms included in the project.
6/ Approximately 10% represents kernel oil production.

March 24, 1976

ANNEX II

METHODOLOGICAL NOTE ON DEMAND PROJECTIONS

1. The following model was used to estimate per capita demand for fats and oils in 145 countries:

$$Q = a \, PIND^{b} \, \frac{Y}{Y+c}$$

where

Q = Per capita demand for fats and oils.

PIND = Price index for fats and oils (1974 = 100), using current exports as weights.

Y = Per capita incomes.

Parameters:

a = 16.8

b = -0.125 (price elasticity of demand for all fats and oils).

c = 729.0

2. A distinctive feature of the demand for fats and oils is its high income elasticity at low levels of per capita income, which declines as incomes increase. The income elasticity approaches zero as per capita consumption reaches saturation. The first part of the model, a $PIND^{b}$, determines the saturation level of per capita fats and oils consumption, which is projected at 27.2 kg in 1980 and 27.3 kg in 1985.

3. The 1975 edition of the World Bank Atlas contains a list of the countries included in the demand projection for fats and oils. Per capita incomes (in constant 1974 US dollars) were projected for 1980 and 1985 on the basis of population projections prepared by the United Nations and the Bank's latest projections of real GNP for these countries. In projecting demand, we assumed that many developing countries will ration foreign exchange expenditures for imports of fats and oils. Should this not be the case demand for fats and oils in 1980 and 1985 could exceed projections by a margin of 2 to 3 percent.

Table 8: PALM OIL WORLD EXPORTS IN MAJOR PRODUCING COUNTRIES, FIVE-YEAR AVERAGES AND PERCENTAGE SHARES, 1955-74 1/

Country	1955-59 1000 MT	1955-59 Percent	1960-64 1000 MT	1960-64 Percent	1965-69 1000 MT	1965-69 Percent	1970-74 1000 MT	1970-74 Percent
WESTERN AFRICA	212.46	36.76	191.67	31.30	105.45	14.96	86.02	6.38
Nigeria	180.40	31.21	147.64	24.11	65.23	9.25	5.96	.44
Ghana			.06	.00	.30	.04	-	
Liberia	.02						.23	.01
Sierra Leone	.62	.11					-	
Dahomey	12.64	2.19	11.61	1.89	10.86	1.54	11.65	.86
Ivory Coast	1.14	.20	.88	.14	.92	.13	48.90	3.62
Togo	.66	.11	.43	.07	0.09	.01	1.09	.08
Cameroon	.46	.09	8.26	1.34	8.42	1.19	7.35	.54
Cent. Afr. Rep.	.01		.01	.00	0.00	.00	.00	.00
Congo, Peo. Rep.	2.98	.52	3.31	.54	0.66	.09	-	
Ec. Guinea	2.81	.49	2.91	.47	5.03	.42	3.00	.22
Gabon			.09	.01	1.07	.15	.22	.01
Gambia								
Guinea								
Guinea-Bassau	.60	.10	.07	.01	0.08	.01	.08	.00
Sao Tome/Principe	1.33	.23	.95	.15	0.54	.07	.19	.01
Angola	8.79	1.52	15.45	2.52	13.44	1.90	7.35	.54
EASTERN AFRICA	160.53	27.78	148.87	24.31	114.24	16.21	89.98	6.67
Tanzania			.08	.01	0.05	.00	.01	.00
Burundi							-	
Zaire	160.53	27.78	148.79	24.30	114.19	16.20	89.97	6.67
LATIN AMERICA-CARIBBEAN	.16	.03	2.28	.37	3.67	.52	5.22	.38
Brazil								
Colombia								
Costa Rica	.01		0.39	.06	.17	.02	.19	.01
Equador								
Honduras	.15	.03	.14	.02	0.83	.11	.49	.03
Mexico								
Paraguay			1.75	.28	2.67	.37	4.54	.33
Venezuela								
EAST ASIA-PACIFIC	188.33	32.58	222.31	36.31	385.44	54.69	903.67	67.05
China Rep.								
Indonesia	121.17	20.96	113.88	18.60	153.56	21.78	229.70	17.04
Malaysia	67.16	11.62	108.43	17.71	231.88	32.90	673.97	50.00
Philippines								
EMENA			0.09	.01			.67	.04
Bahrain							.00	.00
Lebanon							.00	.00
Portugal			..				.67	.04
Spain			0.09	.01				
Syrian Arab Rep.								
OTHERS	16.47	2.85	47.01	7.67	95.93	13.61	262.15	19.45
Austria							-	
Belgium-Luxembourg	6.81	1.18	7.73	1.26	4.96	.70	2.72	.20
Czechoslovakia	.47	.08					-	
Denmark	.04	.01	.07	.01	1.59	.22	.10	.00
France	.72	.12	1.65	.26	.65	.09	1.47	.10
Germany, FR	2.84	.49	3.12	.50	3.54	.50	7.24	.53
Hong Kong	.04	.01					-	
India	.02						.00	.00
Italy			0.10	.01	.14	.01	.61	.04
Japan			.18	.02	.11	.01	.43	.03
Mali							-	
Netherlands	4.38	.76	5.45	.89	10.00	1.41	47.40	3.51
Nicaragua			.24	.03			-	
Niger	.04	.01					-	
Norway							-	
Papua-New Guinea							4.33	.32
Singapore			27.02	4.41	74.15	10.52	196.43	14.57
Sweden	.67	.11	.28	.04	.16	.02	.54	.04
Uganda			.37	.06	.33	.04	.05	.00
United Kingdom	.44	.08	.80	.13	.30	.04	.83	.06
WORLD TOTAL	577.95	100.00	612.23	100.00	704.73	100.00	1,347.71	100.00

1/ Palm Oil export data for 1974: IBRD estimate.

Source: FAO

Table 12: SOME TECHNICAL CHARACTERISTICS OF FATS AND OILS

Fat/Oil	Main Fatty Acid	Iodine Number	Solidification Point (Centigrade)
Soybean Oil	Linoleic	121-142	-18 to -8
Sunflower Oil	Linoleic	115-135	-19 to -16
Groundnut Oil	Oleic	84-105	-2 to 3
Cottonseed Oil	Linoleic	101-107	2 to 4
Rapeseed Oil	Linoleic	94-105	0
Olive Oil	Oleic	78-95	-9 to 0
Palm Oil	Stearic/Palmitic	44-56	24 to 30
Coconut Oil	Lauric	7-10	14 to 25
Palm kernel Oil	Lauric	16-23	19 to 30
Fish Oil	Linoleic	110-180	-4 to 24
Tallow	Stearic/Palmitic	45-55	30 to 38
Lard	Stearic/Palmitic	53-77	22 to 32

Source: IBRD

Table 11: PRODUCTION COSTS ON A 10,000-ACRE OIL PALM ESTATE

	U.S. dollars
Cost of estate to maturity	4,400,000
Cost of road collection system	680,000
Cost of oil mill (30 tons of F.F.B. per hour)	1,600,000
Cost of staff and workers' quarters	600,000
Cost of administrative centres	80,000
Total establishment cost	7,360,000
Annual cost of capital	
5 percent depreciation of US$5,200,000	260,000
10 percent depreciation on US$260,000 (buildings and machinery)	226,000
8 percent interest on US$7,360,000	588,800
Total	1,074,800
Cost per ton of oil	
Capital	68.00
Upkeep and cultivation	26.00
Harvesting and collection	22.00
Manufacture	8.00
General charges	38.00
Forwarding	6.80
Bulking installation	3.20
Tax (ad valorem US$200)	17.50
Total cost per ton of oil f.o.b.	189.50

Source: Technical and Economic Aspects of the Oil Palm Fruit Processing Industry, UNIDO.

Table 10: OIL PALM YIELDS*

Age of Tree Years after Planting	FFB (MT/acre)	Oil in FFB (Percent)	Oil (MT/acre)	Kernel in FFB (Percent)	Kernel (MT/acre)	Palm Kernel Oil 1/ (MT/acre)	Total Oil (MT/acre)	Palm Kernel Cake 2/ (MT/acre)
3	2.40	15.00	0.360	3.6	0.086	0.040	0.400	0.042
4	4.80	16.50	0.792	3.9	0.187	0.088	0.880	0.091
5	7.75	17.75	1.376	4.2	0.326	0.153	1.702	0.158
6	8.95	19.25	1.723	4.5	0.403	0.191	1.914	0.195
7	10.00	20.00	2.000	4.5	0.450	0.222	2.222	0.218
8	10.50	21.50	2.258	4.5	0.473	0.251	2.509	0.229
9	10.50	22.00	2.310	4.5	0.473	0.257	2.567	0.229
10	10.30	22.00	2.266	4.5	0.464	0.252	2.518	0.225
11	10.10	22.00	2.222	4.5	0.455	0.247	2.469	0.221
12	9.90	22.00	2.178	4.5	0.446	0.242	2.420	0.216
13	9.70	22.00	2.134	4.5	0.437	0.237	2.371	0.212
14	9.50	22.00	2.090	4.5	0.428	0.232	2.322	0.208
15	9.30	22.00	2.046	4.5	0.419	0.227	2.273	0.203
16	9.10	22.00	2.002	4.5	0.410	0.222	2.224	0.199
17	8.90	22.00	1.958	4.5	0.401	0.218	2.176	0.195
18	8.70	22.00	1.914	4.5	0.392	0.213	2.127	0.190
19	8.50	22.00	1.870	4.5	0.383	0.208	2.078	0.186
20	8.30	22.00	1.826	4.5	0.374	0.203	2.029	0.181
21	8.10	22.00	1.782	4.5	0.365	0.198	1.980	0.177
22	7.90	22.00	1.738	4.5	0.356	0.193	1.931	0.172
23	7.70	22.00	1.694	4.5	0.347	0.188	1.882	0.168
24	7.50	22.00	1.650	4.5	0.338	0.183	1.833	0.164
25	7.30	22.00	1.606	4.5	0.329	0.178	1.784	0.160

* Yields are based on estates planted with higher yielding varieties (D by P palms), 60 palms per acre.

1/ Assuming a ratio of palm oil to palm kernel oil of 90:10.

2/ Assuming a yield of 48.5 tons of cake per 100 MT of palm kernels.

Source: IBRD

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Distribution List Below

DATE: April 20, 1976

FROM: Kenji Takeuchi, Acting Chief, EPD/CE

SUBJECT: Seminar on Palm Oil Paper

Attached is a preliminary draft of the proposed paper on the long-term market prospects for palm oil. The paper was prepared by Mr. Peter Pollak of the Commodities and Export Projections Division at the request of Mr. Knapp.

You and/or your nominees are invited to a staff review meeting to be held:

Date:	Wednesday, April 28, 1976
Time:	3:00 - 4:00 p.m.
Room:	C-910
Chairman:	Mr. Wouter Tims

Your comments in advance of the meeting, if any, will be appreciated. (Contact Mr. Pollak, Room D-418, Ext. 4060).

Attachment

Distribution:

CPS: Messrs. van der Tak
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File

OFFICE MEMORANDUM

TO: Mr. M. Yudelman, Director, A&RD

DATE: March 24, 1976

FROM: Wouter Tims, Director, EPD

SUBJECT: Forthcoming Paper on Palm Oil

This follows Mr. Knapp's request in the meeting we both attended in his office on March 18, to update the 1973 palm oil paper. My suggestion is, that the Commodities Division (Mr. Pollak principally) take responsibility for drafting the part on the market situation and prospects for oils and fats in general and for palm oil in particular. The part on the Bank's role in the expansion of oils and fats production, past as well as future, appears to me best done in your Department, where already some of that work has been done particularly by Messrs. Darnell and Bates. In addition, a brief discussion of the benefits to small holders from Bank-supported oil palm projects would, in my opinion, strengthen our argument for further Bank lending in oil palm.

I attach a copy of Chapter IV of the previous paper as a possible format for the draft, and also the outline of our own contribution to the joint paper. Mr. Pollak will try to have a draft ready by April 1 for internal discussion; I hope to be able to forward that part, after my review, not later than April 6. If your part could be done within the same time schedule, we might have a draft for review by the Regions around April 16, and for Mr. Knapp before the end of that month. If this is agreeable to you, you may like to inform Mr. Knapp accordingly.

Attachment

cc: Messrs. Karaosmanoglu
Chenery
Haq
Takeuchi
Pollak

IV. IMPLICATIONS FOR BANK GROUP INVESTMENT POLICY

24. Oil palm production is one of the sectors in which IBRD investment has been active. The Bank Group has participated in the financing of plantations of oil palm in Malaysia, Indonesia, the Ivory Coast, Dahomey, Sierra Leone, Cameroon and Papua and New Guinea. Total loans made by the Bank Group for oil palm projects in the last five years have amounted to about US$ 100 million. In addition, a small project in Ghana covering 5,000 hectares has been appraised and several projects are under consideration in Malaysia, Indonesia, Nigeria and the Ivory Coast (Table 14).

25. The expected economic rate of return on the Bank Group projects appraised in the past four years has ranged from 7 to 17 percent in the West African countries, from 16 to 18 percent in Malaysia and over 20 percent in Indonesia. These calculations were based on a projected palm oil price of $160/ton "c.i.f. Europe". According to the projections presented here, the price is expected to be about $289 per ton c.i.f. Europe in 1980 dollars or $200 in 1972 dollars (the price used for purposes of project evaluation), i.e. higher than previously. Even the price at the lower end of the projected range, i.e. $280 a ton, would come out higher than the previous project evaluation base. Moreover, yield rates on newer varieties of oil palm could possibly be raised 1/ and these two elements combined would result in economic rates of return on future oil palm projects higher than those calculated in previous appraisals, even allowing for some increase in costs. So the price projection for 1980 is such as to encourage further investment in oil palm production on the basis of rate of return alone.

26. New investments in oil palm plantings would generate additional output mainly after 1980. The peak yield period of palm trees occurs around the 10th year following planting, gradually diminishes until the twentieth year and falls further with aging stands. 2/ The total productive life of the tree is about thirty years. A large proportion of the increase in world output from new plantings would come after 1980.

1/ In Malaysia, for example, the yield rates on newer varieties could reach a maximum of 6 tons of oil per ha. as compared with yield rates of about 5 tons per ha. on the present generation of varieties.

2/ For example, in Malaysia the yield rate per ha. on high yielding varieties in average environmental conditions has been found to increase from 3,520 kgs. in the 6th year from planting to 5,145 kgs. in the 10th year; thereafter there was a gradual decline in yields to 4,375 kgs. per ha. in the 20th year and to less in later years. ("Oil Palm Cultivation in Malaya" N.C. Williams and Y.C. Hsu, University of Malaya Press, Kuala Lumpur, 1970 as quoted by H.VA International N.V. Amsterdam in "Long-Term Prospects for Palm Oil on the World Market for Fats and Oils".)

27. Though prospects of demand for palm oil after 1980 have not been analyzed in detail, if the trends projected to 1980 continue in the first half of the next decade, world demand for vegetable oils will rise faster than demand for all fats and oils combined until 1985. However, some recovery of output of annual crops of vegetable oilseeds competing with palm oil, notably groundnuts, may take place in the major producing regions if prices remain for some time at their presently high level. This would mean that pressure would be exerted in the medium term on the world market prices of vegetable oils in general and therefore also on the market price of palm oil, though there seems to be no reason to expect the appearance of a serious excess of total supply over total demand.

28. The expectation of rising demand for palm oil in the developing world may involve a greater rate of absorption of output in the producing countries, but also greater import needs in some countries where the production potential appears to be lower than prospective demand. Thus Bank investment in palm oil production, notably in certain African countries, might alleviate possible foreign exchange problems arising from the need for import outlays for consumption purposes. Although investment in palm oil production for the domestic market in some of these countries may entail the use of Bank funds in areas where physical yields are relatively low, 1/ palm oil investments may still appear advantageous from the point of view of the expected rates of return and of general development needs in the countries concerned.

29. The Food and Agriculture Organization of the United Nations (FAO) was consulted on the subject and have offered us valuable comments. Generally, the FAO staff concurs with the views expressed in this paper concerning the prospective growth of world supply and demand for fats and oils. Whereas, investment in palm oil for export should not be continued at the fast rate of the sixties and early seventies, there seems to be continuing scope for some investment in replanting and new planting for export. FAO also agrees that greater attention needs to be paid to increasing output for domestic production in producing countries. In order to get quick results, rehabilitation and more efficient processing of palm fruit is being stressed in current project proposals of both the UNDP and FAO. But future consumption requirements in countries such as Nigeria are so large that investments in new commercial plantings and appropriate processing plants seem necessary.

1/ For instance, in Malaysia and Indonesia, the yield of modern stands at full bearing is about 5 tons of palm oil per ha. In the African countries, yields from plantations under modern varieties range from over 3 tons per ha. in Ivory Coast and certain parts of Zaire (upper reaches of the Zaire river in Equator and Haut-Zaire Provinces) to about 1.8 tons per ha. in the remaining parts of Zaire, Nigeria, Dahomey, Camercon and other countries (yields may of course vary considerably within each country). Lower yields in Africa are due to inadequate rainfall and its uneven distribution over the year, inadequate sunlight, and type of trees.

Table 1/ IBRD PARTICIPATION IN FINANCING OF PALM OIL AND PALM KERNEL PRODUCTION

Projects / Country	Financial Data: Total cost Project/1	Financial Data: Amount Loan/Credit/1	Purpose	Period over which plantings carried out	Technical Data/2: Area/: Total	Area/: Plantings at end 1971	Palm Oil: Estimated Production 1970	Palm Oil: Estimated Production 1975	Palm Oil: Estimated Production 1980	Palm Oil: Estimated Max. Annual Production: Year	Palm Oil: Estimated Max. Annual Production: Thousand metric tons	Palm Kernels: Estimated Production 1970	Palm Kernels: Estimated Production 1975	Palm Kernels: Estimated Production 1980	Palm Kernels: Estimated Max. Annual Production: Year	Palm Kernels: Estimated Max. Annual Production: Thousand metric tons	Share of Production available for export: Palm oil	Share of Production available for export: Palm kernels	Economic rate of return
	(US$ million)	(US$ million)			(Thousand ha.)	(Thousand ha.)	(Thou. metric tons)					(Thou. metric tons)					(Percentage)		
Malaysia																			
State of Pahang																			
1st Jengka	20.0	9.5	Production	1967-1970	11.1	11.1	-	40.0	56.0	1981	57.0	-	11.0	13.0	1981	14.0	100	100	16
2nd Jengka	20.0	8.6	Production & process.	1971-1972	6.7	5.2	-	6.5	32.0	1982	33.0	-	2.0	8.0	1982	8.2	100	100	17
3rd Jengka	23.9	11.9	Production & process.	1973-76	8.6	-	-	-	45.0	1985	50.0	-	-	8.5	1985	10.0	100	50	16
Indonesia																			
1st North Sumatra	24.0	12.7	Production & process.	1969-1973	13.7	11.7	0.3	18.4	68.5	1980	68.5	-	7.8	17.8	1980	17.8	75-80	75-80	29
2nd North Sumatra	20.5	13.2	Production & process.	1970-1974	8.0	4.3	-	9.5	39.8	1982	42.0	-	2.3	9.9	1982	10.2	75-80	75-80	29
Papua and New Guinea																			
New Britain 1st Stage	3.3	1.5	Production & process.	1968-1972	1.9	1.7	-	5.7	8.4	1981	8.5	-	1.1	1.3	1981	1.4	100	100	n.a.
New Britain 2nd Stage	3.9	2.2	Production	1970-1975	3.1	0.8	-	0.7	12.6	1984	14.4	-	0.1	2.1	1984	2.2	100	100	
Cameroon																			
West	10.9	9.0	Production	1967-1974	7.9	7.2	-	7.4	20.7	1984	22.4	-	2.1	6.3	1984	7.1	30	30	n.a.
East	14.1	7.9	Production	1968-1973	9.0	4.5	-	5.0	22.0	1982	25.5	-	1.3	5.3	1982	6.0	25	25	7
Dahomey																			
Hinvi	8.2	4.2	Production & process.	1968-1970	6.0	6.0	-	4.3	10.1	1980	10.1	-	1.4	2.4	1979	2.4	100	100	12
Ivory Coast																			
1st Project	24.0	14.1	Production & process.	1968-1971	16.0	16.0	-	23.2	39.0	1979	39.0	-	5.7	9.4	1979	9.4	50-60	50-60	12
2nd Project	6.5	2.6	Production & process.	1972-1974	4.5	-	-	-	7.9	1982	9.9	-	-	1.9	1982	2.4	100	100	n.a.
Sierra Leone /3	3.1 /4	2.4	Production & process.	1973-1975	0.9	-	-	2.1	4.3	1981	4.3	-	0.8	0.9	1981	0.9	0	100	12
TOTAL	182.4	99.8			97.4	68.5	0.3	123.3	362.3			-	35.6	86.8					

/1 Oil palm portion of cost of project and of IBRD loan or credit, each including interest.

/2 Area and production figures exclude amounts resulting from rehabilitation and fertiliser which are included in value of loan/credit.

/3 Includes the production from 1,077 ha. planted in the period 1968-1972 prior to commencement of IBRD project.

/4 Includes one-third of the project unit cost.

n.a. = not available.

Source: IBRD Projects Department.

Table 14: IBRD/IDA: PALM OIL PROJECTS AND PROJECTS WITH A PALM OIL COMPONENT SCHEDULED FOR APPROVAL IN FY74

Country	Project	Amount ($ million)
Nigeria	Agric-Oil Palm	15.0
Ivory Coast	Agric-Oil Palm III	6.0
Ghana	Oil Palm	5.0
Malaysia	Jahore Tenggera	35.0
	Keratong (Pahang)/1	20.0
	Agric-Credit I /1	25.00
Indonesia	Estates V	-/2

/1 Subject to confirmation.

/2 Not yet established.

Source: IBRD, Regional Departments.

DRAFT
P.Pollak:ejl
March 1, 1976

Outline

PALM OIL: ISSUES AND MARKET PROSPECTS

I. SUPPLY OF PALM OIL

1. Palm Oil Production
2. Past Trends and Prospects for Palm Oil Exports

II. MARKET PROSPECTS FOR PALM OIL

1. Demand for Fats and Oils as a Group
2. Demand for Palm Oil
3. Market Prospects for Fats and Oils: Glut or Shortage

III. PRICE OUTLOOK

1. Price Relationships among Fats and Oils
2. The Price Outlook
   (a) Price Impact of a Glut
   (b) Price Impact of a Shortage

IV. BANK LENDING

1. Bank Lending for Oil Palm Projects in the Past
2. Impact of Bank Lending on World Markets for Fats and Oils

DRAFT
PPollak:dbd
March 1, 1975

PALM OIL: ISSUES AND MARKET PROSPECTS

1. Objectives. This paper serves two purposes, namely to provide some background information on the palm oil industry and to assess the market prospects for palm oil.

2. Supply of Palm Oil. After a gestation period of about 3 years, oil palms can be economically harvested for about 25 years. Considering that yields are low during the first few years (Table 1), the potential supply of oil palm products (palm oil, palm kernels, etc.) is well determined until about 1980. After 1980, supply will be affected by changes in the area planted with oil palm. The first part of this chapter deals with those factors that have a major impact on the supply of palm oil (climatic conditions, use of fertilizer, etc.). This will provide a basis for assessing the prospects of palm oil supply. Because only a small portion of palm oil is consumed in producing countries, export availabilities of palm oil closely reflect production. The second part of this chapter focuses on the flow of palm oil into international markets.

3. Market prospects for palm oil. Preliminary projections point to a dramatic increase in the supply of palm oil during the next decade. The question whether these additional supplies can be absorbed without a sharp decline in prices for fats and oils becomes therefore a major issue in assessing the market prospects for palm oil. Fats and oils of the so-called 'edible soap' group 1/ make up more than 90 percent of the total output of all

---

1/ The label 'edible-soap' group reflects the dual purpose of fats and oils in this category, mainly the use for edible purposes (margerine, shortening, etc.), and the use for inedible purposes (soaps, detergents, etc.).

Table 1 : OIL PALM YIELDS*

Age of Tree Years after Planting	FFB (MT/acre)	Oil in FFB (Percent)	Oil (MT/acre)	Kernel in FFB (Percent)	Kernel (MT/acre)	Palm Kernel Oil 1/ (MT/acre)	Total Oil (MT/acre)	Palm Kernel Cake 2/ (MT/acre)
3	2.40	15.00	0.360	3.6	0.086	0.040	0.400	0.042
4	4.80	16.50	0.792	3.9	0.187	0.088	0.880	0.091
5	7.75	17.75	1.376	4.2	0.326	0.153	1.702	0.158
6	8.95	19.25	1.723	4.5	0.403	0.191	1.914	0.195
7	10.00	20.00	2.000	4.5	0.450	0.222	2.222	0.218
8	10.50	21.50	2.258	4.5	0.473	0.251	2.509	0.229
9	10.50	22.00	2.310	4.5	0.473	0.257	2.567	0.229
10	10.30	22.00	2.266	4.5	0.464	0.252	2.518	0.225
11	10.10	22.00	2.222	4.5	0.455	0.247	2.469	0.221
12	9.90	22.00	2.178	4.5	0.446	0.242	2.420	0.216
13	9.70	22.00	2.134	4.5	0.437	0.237	2.371	0.212
14	9.50	22.00	2.090	4.5	0.428	0.232	2.322	0.208
15	9.30	22.00	2.046	4.5	0.419	0.227	2.273	0.203
16	9.10	22.00	2.002	4.5	0.410	0.222	2.224	0.199
17	8.90	22.00	1.958	4.5	0.401	0.218	2.176	0.195
18	8.70	22.00	1.914	4.5	0.392	0.213	2.127	0.190
19	8.50	22.00	1.870	4.5	0.383	0.208	2.078	0.186
20	8.30	22.00	1.826	4.5	0.374	0.203	2.029	0.181
21	8.10	22.00	1.782	4.5	0.365	0.198	1.980	0.177
22	7.90	22.00	1.738	4.5	0.356	0.193	1.931	0.172
23	7.70	22.00	1.694	4.5	0.347	0.188	1.882	0.168
24	7.50	22.00	1.650	4.5	0.338	0.183	1.833	0.164
25	7.30	22.00	1.606	4.5	0.329	0.178	1.784	0.160

* Yields are based on estates planted with higher yielding varieties (D by P palms), 60 palms per acre.

1/ Assuming a ratio of palm oil to palm kernel oil of 90:10.

2/ Assuming a yield of 48.5 tons of cake per 100 MT of palm kernels.

Source: Mission Estimates.

Table 2 : CORRELATION METRIX OF PRICES FOR SELECTED FATS AND OILS

Fat/oil	Sun-flower	Ground-nut	Cotton seed	Rape seed	Olive	Palm	Coco-nut	Palm kernel	Fish	Butter	Tallow	Lard
Soybean	.99	.97	.96	.98	.92	.97	.79	.84	.95	.69	.96	.94
Sunflower		.98	.96	.98	.92	.97	.80	.85	.95	.71	.94	.93
Groundnut			.97	.94	.94	.95	.81	.85	.93	.74	.93	.89
Cotton seed				.92	.93	.94	.84	.85	.91	.66	.92	.87
Rape seed					.88	.95	.76	.81	.93	.63	.92	.97
Olive						.86	.66	.71	.83	.81	.88	.85
Palm							.88	.92	.97	.62	.95	.91
Coconut								.98	.86	.32	.82	.69
Palm kernel									.90	.39	.85	.74
Fish										.60	.97	.91
Butter											.62	.63
Tallow												.91

Source: Correlation coeffecients were computed from prices shown in Table

fats and oils. Commodities in this group are highly interchangeable. Table 2 illustrates this point. The demand prospects for fats and oils as a group therefore set the stage for an assessment of the demand prospects for palm oil.

4. Price Outlook. This chapter ties together the findings of the first two chapters--on demand and supply--and looks at their impact on prices for fats and oils. Past trends of fats and oils prices, and their relationships to each other, will provide the basis for the price outlook. The price outlook will be presented in two parts; for the group of fats and oils as a whole, and for palm oil. Two possible scenarios will be considered: the first will assume a glut of fats and oils while the second will assume a shortage.

5. Bank Lending. The last chapter deals with the Bank's role in the world palm oil economy. Past Bank lending will be briefly reviewed. The focus of this chapter will be on the impact of Bank lending on markets for fats and oils. Together with price projections of the third chapter, this will then provide the basis for recommendations on future Bank lending in this commodity.

The findings of this chapter together with the price projections developed in the third chapter will serve as basis for recommendations of future Bank lending in this commodity.

FORM No. 89
(2-66)

INTERNATIONAL BANK FOR
RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT
ASSOCIATION

INTERNATIONAL FINANCE
CORPORATION

ROUTING SLIP

Date: Mar. 23/76

OFFICE OF THE PRESIDENT

Name		Room No.
Messrs. Bell	Stern	
Chaufournier	Please	
Karaosmanoglu	Yudelman	
Tims	Darnell	
Baum		

	To Handle		Note and File
	Appropriate Disposition		Note and Return
	Approval		Prepare Reply
	Comment		Per Our Conversation
	Full Report		Recommendation
	Information		Signature
	Initial		Send On

Remarks

Palm Oil

Mr. Knapp thought you would be interested in the attached in connection with the recent meeting on this subject.

From

R. S. Dosik - E 1231

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

File

OFFICE MEMORANDUM

TO: Mr. J. Burke Knapp, Senior Vice President DATE: March 19, 1976

FROM: Charles A. Cooper, U.S. Executive Director

SUBJECT: Palm Oil Hearings

Attached are copies of John Bushnell's and Dick Bell's statements yesterday on the palm oil issue. I would like to call your attention in particular to Pages 8 and 9 of Bushnell's testimony.

Attachments

FOR RELEASE UPON DELIVERY
MARCH 18, 1976

STATEMENT OF JOHN A. BUSHNELL
DEPUTY ASSISTANT SECRETARY FOR DEVELOPING NATIONS
BEFORE THE SUBCOMMITTEE ON OILSEEDS AND RICE
OF THE HOUSE AGRICULTURE COMMITTEE
MARCH 18, 1976 AT 10:00 A.M. EST

Mr. Chairman and members of the Subcommittee, I appreciate this opportunity to testify before you today on international development bank lending for palm oil projects.

The role of the international development banks is to assist the poorer countries to increase efficient, economical production. The banks do not assist new production of items for which market conditions are difficult or are estimated to be difficult at the time of full production. Only economical production for which there are good markets can meet the twin objectives of the banks -- promoting expanded output and incomes and establishing a project which can easily pay the interest and amortization on the loan.

The U.S. Government reviews carefully the potential implications of development bank projects for U.S. producers as well as for U.S. consumers. Of course we suffer from the limitation that no one has a perfect crystal-ball for predicting the future. We supported considerable development bank financing of palm oil -- particularly in the 1971-74 period when fats and oils prices were high. Given the long lead times for these projects, it now appears that they are just coming into production when fats and oil prices are falling. Recently we have been advising the development banks to proceed very cautiously, if at all, with projects which will result in palm oil exports pending the completion of studies which we hope will project accurately the market situation a decade into the future.

I shall divide my presentation into four parts:

-- palm oil in the context of the world market for fats and oils;

-- the activities of the international development banks in lending for palm oil production;

-- the status of market studies being undertaken within the U.S. Government;

-- the role of the Treasury Department and the National Advisory Council on International Monetary and Financial Policies (NAC) in approving loans of the international development banks.

Palm Oil

The Administration is well aware that increases in foreign palm oil production, partly financed by the international development banks, are causing increasing concern for U.S. producers of competing oils, particularly in the light of recent market developments for fats and oils in general.

In the developing countries that grow palm oil for export , particularly Malaysia and Indonesia, -- countries incidentally with per capita incomes of about $400 and $130, respectively -- an increase in palm oil production was seen in the 1960s and early 1970s' as a primary way to diversify their agricultural economies and to help small landholders who were eking out miserably low incomes on subsistence farms. Rapid increases in demand for palm oil were projected, particularly to meet the need for improved diets in developing countries. Improving economic stability and particularly helping improve rural incomes in Malaysia and Indonesia were high priorities for the U.S. Government because of the political importance of these Asian countries.

In the early 1970s, world demand for fats and oils was increasing and prices were rising. In the 1972-75 period soybean prices increased, on the average, to a level which was 130 percent above the average for the 1960-70 period. In 1975, world market conditions for fats and oils, and most other non-fuel agricultural and mineral commodities, changed markedly and suddenly. The worldwide recession adversely affected the rate of consumption growth. At the same time, the world supply of fats and oils from all sources was increasing rapidly responding to the unusually high prices of the preceding few years.

U.S. palm oil usage in 1975/1976 is expected to increase to 900 million pounds, or 7 percent of domestic U.S. fats and oils consumption. Treasury's preliminary estimate is that imports of palm oil have contributed three to four cents of the 12-15 cent drop in soybean oil prices from the 1974-1975 level of about 31 cents per pound. Most of the remaining price decline is due to a nearly one billion pound increase in availability of soybean oil from 1974/75 levels. The increase in U.S. palm oil imports reflects the tight soybean oil situation in recent years and a change in the historical price relationship between soybean oil and palm oil. For the years 1973-75, the spread between soybean oil and palm oil prices was significantly greater than in previous years. This price spread has now lessened and the substitution of palm oil for soybean oil should be less rapid with a resulting slower growth of imports. As indicated in the attached graph, current soybean oil prices are well below the record highs of the last two years, but they are substantially above prices prevailing in the late 1960's.

We are very acutely aware of the problem of world supply and demand for fats and oils and any new palm oil projects proposed by the international development banks.

The World Bank justified its lending for palm oil projects on the basis of a comprehensive study issued in September, 1973, ("Palm Oil Review and Outlook for Bank Lending"). This study considered the palm oil situation in the context of trends and future prospects of world demand and supply for fats and oils. The study concluded that world demand for fats and oils in general was expected to grow rapidly enough to absorb the prospective increase in output of these commodities as a group in the decade ahead without significant downward pressure on their market prices. It concluded further that demand for all vegetable oils would grow faster than for other fats and oils; the Bank experts felt that a larger share of this demand than in the past would have to be met from palm oil and soybean oil as a result of the slower expected growth in supply of most competing oils. They also concluded that some downward adjustment of the real price of palm oil might be needed because it is not a perfect substitute for other oils. However, as the overall world supply and demand situation for fats and oils in 1980 was expected to be in balance, the fall in the price of palm oil relative to other oils was expected

to be moderate, particularly since palm oil accounted for a relatively small share of world production of fats and oils.

According to the World Bank study, the increase in the share of vegetable oils compared with other fats and oils was due to a number of factors which were likely to be felt more in developed than in developing countries. However, future demand for vegetable oils in developing countries was also expected to increase considerably faster in this decade, reflecting the rise in incomes in these countries and the fact that the income elasticity of demand for the oils tend to be relatively high at low income levels. For instance, as a result of the projected slow growth of production in the hitherto main producing countries of Africa, some of these countries were expected to become major importers of palm oil.

Moreover, the World Bank study concluded that due to the gradual shift of consumption in the developed countries away from animal oils and fats and toward products based on vegetable oils, including palm oil, the export demand prospects would remain favorable in the period to 1980 and also in the next decade.

Though prospects of demand for palm oil after 1980 were not analyzed in detail in the World Bank study, if the trends projected to 1980 continue in the first half of the next decade, world demand for vegetable oils will rise faster than demand for all fats and oils combined until 1985.

The World Bank study indicated that, although physical yields were highest in the major producing countries of Asia (Malaysia and Indonesia), investment in palm oil production still remained attractive in some other countries, notably in Africa, given the alternative investment opportunities available to these countries. By investing in palm oil production, the Bank felt it could therefore make a positive contribution to economic development of some African countries.

The Bank study reports that the Food and Agriculture Organization of the United Nations (FAO) generally concurred with the views expressed in World Bank study. The FAO was of the view that there was scope for investment in palm oil projects both to produce limited additional supplies for export and, particularly, to increase supplies for domestic consumption.

Loans for Palm Oil Projects

Over the past decade -- 1965-1975 -- the World Bank (IBRD), the Inter-American Development Bank (IDB), and the Asian Development Bank (ADB) have made 32 loans totaling over $300 million for palm oil production in developing countries. Twenty of these loans have been approved since 1970. A list of the palm oil projects financed by the international development banks is shown in Annex 1. Of course, these development banks make loans for a great many development projects -- in industry, power, transportation and other sectors -- besides agriculture. Since 1970, the amount of loans by these banks for palm oil accounts for only about one percent of their total commitments.

Palm oil is one of the most difficult products to assess in terms of development bank lending because of the very long lead times involved. For most bank projects two or three years are needed to develop the project before bank approval. It then takes about two years from the time a project is approved by the Executive Board until a palm tree is planted. Thereafter, it takes three to five years for the palm trees to begin producing oil. The peak yield period of palm trees occurs around the tenth year following planting. Thus projections of market conditions are needed for many years into the future to deal with such projects. As we have seen over the past five years, the fats and oils market can change very rapidly.

In this connection I would note that projects coming to the boards of the banks last year and this year were generally initiated in 1973 and 1974 when prices for edible oils were unusually high. Moreover, the projects approved in 1974 and 1975 will probably not have an impact on the market until the 1980s. Incidentally only one of the palm oil projects approved in 1975 is expected to result in any substantial exports of palm oil; the projects in Africa will provide palm oil mainly for consumption in the producing country. This is not the case, however, for the projects approved by the international development banks in 1974.

Let me say a word now about the terms of the loans made by the international development banks. In general concessional terms have been extended to support production for the domestic market -- with export production generally

financed at close to commercial terms. Half of the loans were made on "soft" terms. The remaining 15 projects were made on "hard" terms. Of the 16 soft loans made, 10 were from IDA with terms of 50 years, including 10 years grace, and a service charge of 0.75 of 1 percent. These loans were made primarily to the African countries. The four loans from the Inter-American Development Bank (IDB) were at interest rates between 1 and 3 percent with terms from 16 to 40 years. These loans were to Ecuador (2), Honduras and Peru, all for domestic consumption. In 1969 and 1971, the Asian Development Bank (ADB) made two loans to Indonesia at 2.5 and 3.0 percent, repayable in 30 and 24-1/2 years, respectively. The remaining 15 loans -- 11 of which were made since 1970 -- were extended on near market terms, mostly by IBRD. Specifically, the rates ranged from 6.25 percent in the mid-to-late 1960s to the present rates of 8.5 percent for IBRD and 8.75 for the ADB with terms of 20 to 25 years.

The most recent palm oil loan, the Gohor Lama Processing Plant in Indonesia, was made for 20 years, with 4 years grace, at 8.75 percent, and the last IBRD loan to Malaysia in 1974, carried an interest rate of 8 percent with repayment over 23 years.

If we use the estimated maximum annual production for each bank-financed project, the total is 1.1 million tons, or about 23 percent of estimated world production in 1980. Approximately one-third, or 11 of the projects, are for domestic consumption. Nevertheless, 72 percent of the production from total bank-financed projects is for export.

At this point, I would like to say a few words about the Administration's general position towards U.S. assistance to the developing countries through the international development banks. The United States is committed to assisting developing countries in their efforts to increase their food production and to raise the standard of living for the very poor in these countries. Palm oil is one of the best crops for some of these countries to produce efficiently for domestic food uses and for earning the foreign exchange to buy goods from us that they need for development. The United States supports assistance to developing countries on both humanitarian and self-interest grounds since we are convinced that increased production is the only long-term solution to the serious food and income problems faced by these countries. Moreover, as countries prosper and their

effective demand increases, their commercial import requirements rise. The consequent growth of developing countries, we believe, is the best way to increase demand for traditional U.S. exports in a magnitude far greater than any potential initial displacement.

It is with this global view of world supply and demand for edible fats and oils that the palm oil problem should be viewed. We seek open markets in which flows of trade are determined by competitive efficiencies. The importance of this open trading system is crucial to U.S. agriculture, particularly in view of our "full production" policy. In 1974/75, agricultural exports amounted to over $21 billion. More to the point, soybeans and other U.S. oilseeds have been among the largest of our agricultural exports. In FY 1975 soybeans and products surpassed feed grains in total value of exports, amounting to $4.9 biilion or nearly 22 percent of total agricultural exports.

Our estimates indicate that bank-financed projects involving palm oil accounted for about 20 percent of the increase in world production from 1970 to 1975 and 16 percent of the export increase for the same period. Palm oil currently accounts for not quite 7 percent of world output of fats and oils and is projected to rise to about 9 percent in 1980. Thus, involvement by these banks in palm oil production represents only a small part -- less than one percent -- of total world production of fats and oils. Palm oil trade sources in Malaysia indicate that the development of the palm oil industry in that country has been accomplished principally with private funds and the World Bank has provided only 7 percent of the required capital.

Future Fats and Oils Prospects and Palm Oil Loans

Forecasting over the medium and long-term, in the case of most commodities including fats and oils, is at best uncertain. Difficult as these forecasts are, however, they are necessary to support objective decisions in the U.S. interest. For this reason we are counting on the USDA study concerning fats and oils now underway to help us in formulating a definitive U.S. position toward palm oil project financing by the international development banks.

Also the Food and Agriculture Organization (FAO) is undertaking a long-term study of the world fats and oils situation. Completion of this study is not expected until early 1977. When completed, the FAO study should be helpful in providing the banks with another appraisal of the demand and supply outlook for fats and oils well into the 1980's. The World Bank, on its part, is updating its study on the outlook for fats and oils. This study will be completed in July.

The current World Bank list of prospective projects includes six proposals involving palm oil, and the Asian Development Bank (ADB) is now considering two. Of these, eight projects only one or two are likely to be ready for consideration by the IBRD or ADB Boards before the USDA's report and the interagency review have been completed.

The USDA's report and conclusions will be the basis for a thorough interagency review of the U.S. Government position on any palm oil projects proposed by the international development banks. A working group of the National Advisory Council has already been established to consider such projects. As President Ford mentioned in his recent visit to Illinois, this is also a matter that is being considered at the very highest level in the Executive Branch.

I believe that there is substantial evidence that there will be oversupply in the fats and oils market through 1980, despite growing demand, and for this reason the development banks should back away from new projects for palm oil exports. I have asked our Executive Directors in the banks to work with their managements to find alternative products and alternative projects for development bank financing. In one case a development bank has already substituted other products for palm oil in an agriculture development project. If alternatives are not possible, we are asking the banks to delay consideration of new palm oil projects until the long-term market studies are completed.

We would of course examine carefully any palm oil project that might come to the board of a development bank before these studies are completed. At this point, we in Treasury would tend to go along with projects which are solely or principally to supply a domestic market, particularly if increased availability of palm oil would raise nutrition levels. We would not support projects that were principally for export.

The development banks are multilateral institutions and do not necessarily respond to the wishes of a single member - even the largest single member. Thus, on issues such as the advisability of financing additional palm oil production we proceed largely by convincing the staffs of the banks and experts of other countries that our position is correct. No organization in the world has a better reputation for its ability to analyze commodity markets than the U.S. Department of Agriculture and all the banks pay very close attention to the Department's views. However, they have their own commodity experts, they maintain close contact with the FAO, and they consult with commodity experts of other governments. Thus, it is important for us to lay out clearly our analysis and our projections in order to make a case.

As you have heard, Agriculture is now preparing such a study. I am sure we shall convince these banks to halt lending for palm oil if our analytical case is strong. Some time is usually needed to develop a worldwide consensus on such issues, but such a consensus does develop. I would note that it is not in the interest of present palm oil producers to have the banks lend for substantial additional export production unless the market is strong. Nor is it in the interest of the banks to make new loans that might convert old loans into bad projects by reducing the price of the export product.

As we look further ahead, there are a number of questions which we have not yet analyzed in detail in Treasury which are relevant to the palm oil question. I do not know the relative economies of production of palm oil as compared with soybean oil production. This is a very complicated question depending in considerable part on the market for other soybean products as well as on such things as the exchange rate systems of the palm oil producing countries. There is a school of thought that, because palm oil can be produced economically in some parts of the world, its production will continue growing and it will take an increasing share of the fats and oils market. The basic issue will require a great deal more analysis and consideration before a convincing argument -- one way or the other -- can be made. I can assure you that we shall be devoting considerable attention to this analysis in the U.S. Government.

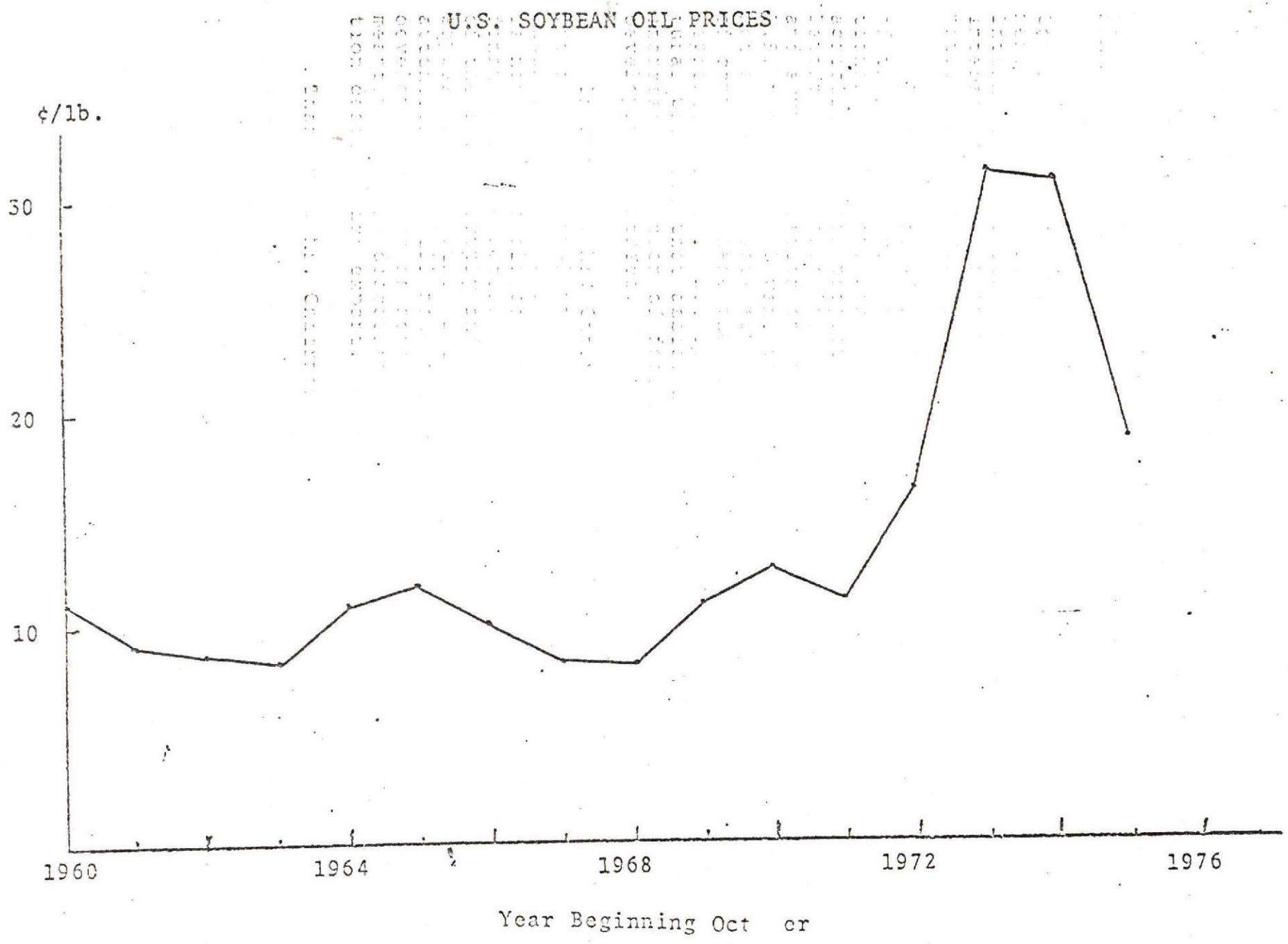
Role of Treasury and the NAC

I want to emphasize that all resources of the U.S. Government are coordinated in taking a position on development policies of loans. The National Advisory Council on International Monetary and Financial Policies (NAC) is the interagency group responsibile for coordinating U.S. participation in the international financial institutions.

I have attached as Annex II a description of the role of the NAC in reviewing the proposed loans of the international development banks. I want to stress that in reviewing agricultural loan projects the NAC draws heavily on the Department of Agriculture for advice on the world demand and supply situation and the impact of proposed loans on U.S. producers. I want to reiterate that the NAC does not support projects aimed at increasing production of commodities where the outlook is for surpluses and depressed prices. But it does encourage loans for agricultural projects that assist small farmers and those that increase production of food for domestic consumption in the developing countries.

In summary, Mr. Chairman, we fully recognize that the international development banks have financed a considerable expansion of palm oil production. However, the major issue is not what has already been financed but what will be financed in the future. We are very much aware that estimates of the future supply and demand situation for palm oil, soybean oil and other fats and oils require careful attention. We will make our studies available to the development banks as soon as they are completed. In the meantime, we are discouraging new loans for palm oil production destined for export.

Thank you, Mr. Chairman.


U.S. SOYBEAN OIL PRICES
¢/lb.
30
20
10
1960
1964
1968
1972
1976
Year Beginning Oct er

ANNEX I

Production and Exports of Palm Oil Financed by IFI Projects 1965 - 1975

Date	Country	IFI	Purpose	Loan ($ Millions)	Loan Amount for Palm Oil ($ Millions)	Peak Annual Oil Production (MT) [1/]	Oil Exports (MT)	Peak Annual Kernel Production (MT) [1/]	Kernel Exports (MT)
11/6/75	Indonesia	ADB (OC)	Processing	11.3	11.3	25000	25000	5000	--
6/17/75	Nigeria	IBRD	Smallholder Development	17.0	17.0	25300	--	5800	5800
6/17/75	Nigeria	IBRD	Smallholder Development	19.0	19.0	35200	--	8000	8000
6/17/75	Nigeria	IBRD	Smallholder Development and Estates	29.5	29.5	38400	--	8700	8700
4/29/75	Sierra Leone	IBRD/ IDA	Groundnuts, Cocoa, Palm Oil	5.0 5.0	2.5	3200	--	800	800
2/18/75	Ghana	IDA	Plantation & Mill	13.6	13.6	14000	--	3000	3000
9/17/74	Malaysia	IBRD	Planting & 2 Mills	36.0	32.4	90000	90000	17000	--
8/1/74	Malaysia	ADB (OC)	Production, Mills & Storage	14.0	14.0	120000	120000	--	--
6/27/74	Ivory Coast	IBRD	Plantations & Estates	2.6	2.6	30800	30800	6300	6300
2/5/74	Malaysia	IBRD	Production & 5 Mills	40.0	34.8	123500	123500	24800	24800
12/1/73	Ecuador	IDB (FSO)	Livestock & Palm Oil	15.0	3.3	18800	--	3800	--
3/13/73	Malaysia	IBRD	Planting & Mill, Rubber, Cocoa	25.0	14.5	49000	49000	10000	10000
2/6/73	Indonesia	IDA	Oil Palms, Rice & Rubber	5.0	0.4	5400	5400	1100	1100
6/22/72	Indonesia	IDA	Oil Palms, Processing, & Rubber	11.0	8.3	38500	[2/]	7200	[2/]
6/20/72	Sierra Leone	IDA	Oil Palms, Rice & Cocoa	4.3	1.9	4300	--	900	900
6/1/72	Ivory Coast	IBRD	Oil Palms, Mill & Coconut	7.0	2.6	9900	9900	2400	2400
3/25/71	Indonesia	ADB (SF)	Oil Palm & Rubber	7.4	2.8	29900	29900	6000	6000
5/20/70	Malaysia	IBRD	Production & Processing	13.0	8.6	33000	33000	8200	8200
6/15/70	Indonesia	IDA	Oil Palms & Rubber	17.0	13.2	42000	32600	10200	7900
1/30/70	Papua New Guinea	IDA	Palm Oil, Beef & Coconuts	5.0	2.2	14400	14400	2200	2200
10/21/69	Indonesia	ADB (SF)	Production & Mills	2.4	2.4	26800	21400	5100	4100
6/20/69	Indonesia	IDA	Planting	16.0	12.7	68500	53100	17800	13300
6/13/69	Ivory Coast	IBRD	Oil Palms, Mill & Coconuts	17.1	14.1	39000	21500	9400	5200
4/15/69	Cameroon 3/	IBRD	Production & 2 Mills	9.6	9.6	25500	--	6000	--
3/27/69	Honduras	IDB (FSO)	Production	7.7	1.5	3000	--	--	--
3/20/69	Ecuador	IDB (FSO)	Production	6.0	2.4	11000	--	--	--
3/5/69	Benin 3/	IDA	Production & Forestry	5.2	4.2	10100	10100	2400	2400
2/11/69	Malaysia	ADB (OC)	2 Mills	2.8	2.8	77000	77000	19300	19300
1/21/69	Papua New Guinea	IDA	Production	1.5	1.5	8500	8500	1400	1400
4/17/68	Malaysia	IBRD	Oil Palms & Resettlement	14.0	9.5	57000	57000	14000	14000
3/28/67	Cameroon	IDA	Production	11.0	9.0	22400	6700	7100	2100
5/26/66	Peru	IDB (FSO)	Production	15.0	0.8	2000	--	--	--
	TOTALS			411.0	305.0	1,101,400	788,900	207,900	152,400

1/ Production during year of maximum production

2/ Not estimated separately

3/ Includes supplemental loans

Source: OIDP, Department of Treasury

ROLE OF THE NATIONAL ADVISORY COUNCIL ON INTERNATIONAL MONETARY AND FINANCIAL POLICIES VIS-A-VIS THE INTERNATIONAL DEVELOPMENT BANKS

The National Advisory Council on International Monetary and Financial Policies (NAC), which was established by the Bretton Woods Agreements Act July 31, 1945, is responsible for coordinating U.S. participation in the international financial institutions, as well as the policies and practices of all agencies of the Government which make, or participate in making, foreign loans, or which engage in foreign financial, exchange, or monetary transactions. In fulfilling these responsibilities the NAC reviews proposed loans and credits of the World Bank Group, the Asian Development Bank (ADB) and the Inter-American Development Bank (IDB) with a view to recommending to the Secretary of the Treasury instructions to the U.S. Executive Directors in those institutions which the NAC member agencies consider appropriate. This process of coordinated review is followed in connection with all of the proposed transactions of these institutions, whether these involve construction of power plants, highway improvements or the financing of projects designed to develop, or increase the production and processing of agricultural products, including palm oil.

NAC review is initiated, generally speaking, upon receipt of a detailed proposal from the World Bank or one of the other international development financing institutions. These proposals are then carefully reviewed as to their merits and consistency with both U.S. and Board policies, by the NAC Staff Committee, which meets regularly every Tuesday afternoon. Representatives of the NAC member agencies and other interested agencies of the U.S. Government bring to bear economic, political, financial and other technical expertise during the Staff Committee meeting. Specifically, in the case of agricultural projects, representatives of the Agriculture Department regularly participated in the NAC Staff Committee meetings and are given full opportunity to present that Department's views on such projects for the consideration of the NAC.

The recommendations of the NAC on loan proposals are, after Staff Committee review and subsequent reference to policy level officials of the NAC member agencies, embodied in documents known as Actions. The member agencies, votes

for each proposal are cast on the basis of those agencies' evaluations of all of the relevant factors pertaining to the proposal being considered, including such elements as foreign policy considerations, consistency with international institution lending policies, and the economic viability and intrinsic merits of the proposal. NAC Actions approved as a consequence of this review and voting process typically state "The NAC advises the Secretary of the Treasury that it recommends the U.S. Executive Director in the World Bank (or other institution) take affirmative (negative or abstaining) action on the proposal to finance a project involving..."

Upon receipt of the NAC's advice on given transactions, the Secretary of the Treasury then instructs the U.S. Executive Director in the International Financial Institution as to how he should deal with a proposal in that institution's board. In this connection, I would like to mention that authority to instruct the U.S. representatives in the international institutions, which was previously vested in the National Advisory Council under the Bretton Woods Agreement Act, was delegated to the Secretary of the Treasury under the provisions of Executive Order 11269 of February 14, 1966, which was the Executive Order reconstituting the NAC after its abolition as a statutory body in 1965.

Members of the Committee may find it useful to refer, in this connection, to Appendix A of the fiscal 1975 Annual Report of the NAC to the President and to the Congress (House Document 94-348) for fiscal 1975, where the activities of the Council are described in more detail.

Statement of Richard E. Bell
Assistant Secretary of Agriculture
for International Affairs and Commodity Programs
before the
House of Representatives
Subcommittee on Oilseeds and Rice

March 18, 1976

I welcome this opportunity, Mr. Chairman, to appear before the Subcommittee on behalf of the Department of Agriculture to discuss imports of palm oil.

As you are aware, Mr. Chairman, the sharp increase in palm oil imports during the past 12 to 18 months is of great concern to our agricultural community. It is also of great concern to the Administration.

The Administration has underway two studies aimed at developing additional facts which will help determine future U.S. Government policy toward palm oil. One is concerned with U.S. Government policy regarding loans made by international lending institutions. The other concerns the more direct impact of palm oil imports on our domestic oilseed production, and subsequent effects on costs of living and living standards.

Until these studies are completed, it will not be possible for us to establish an Administration position on either of these issues. Therefore, my testimony today will be concerned with discussing the facts related to palm oil imports, as we now know them, and their implications.

As you know, Mr. Chairman, we in the Agriculture Department have already done some work on analyzing recent developments in world palm oil production. Our Foreign Agricultural Service recently completed a rather exhaustive review of recent and likely patterns in world palm oil production and trade. This study will help speed completion of the studies now underway.

Before discussing palm oil imports, however, I believe it important that we remind ourselves that the United States is the world's largest producer and exporter of oilseeds and oilseed products. Also, over the years, the United States has been a strong advocate of freer international trade in oilseeds and oilseed products.

Exports are crucial to the well-being of the American farmer. The produce from nearly one acre out of every three acres harvested in the United States is exported. The United States exports 60 percent of its production of wheat, 50 percent of its rice, nearly 50 percent of its soybeans and soybean products, 40 percent of its cotton, 35 percent of its grain sorghum, 30 percent of its tobacco and 25 percent of its corn.

In 1975, cash receipts to farmers from the sale of oilseed crops totaled $8 billion. Oilseeds were second only to grains as a cash crop.

In Fiscal Year 1976 ending next June 30, we expect to export $4.2 billion worth of oilseeds and oilseed products. Again, these exports will be second only to our exports of grains.

Production of vegetable oil in the United States is mostly from soybeans and cottonseed. In 1975, these two oilseeds accounted for nearly 90 percent of our total vegetable oil production and nearly 75 percent of our total production of edible fats and oils, including animal fats such as butter, lard and edible tallow.

Soybean oil is by far the dominant vegetable oil produced and used in the United States. In 1975, it accounted for 80 percent of total U.S. vegetable oil production, and 65 percent of our total production of edible fats and oils.

Soybean and cottonseed oil are joint products. In other words, the oil is one of two products derived from the crushing of soybeans or cottonseed. The other product is vegetable protein, usually in the form of oil cakes and meals used in the feeding of livestock to produce meat, eggs, milk and dairy products.

The meal and cake produced from U.S. oilseeds -- particularly soybeans -- are important to livestock production not only in the United States but also in Canada, Western Europe and Japan. Western Europe imports about

80 percent of the protein supplement it feeds to livestock. Japan imports about 90 percent. Most of those imports come from the United States in the form of soybeans or soybean meal.

While the United States is the world's largest producer and exporter of oilseeds and oilseed products, it is also a substantial importer of vegetable oils, particularly from tropical areas. During the 5 marketing years from October 1, 1969, through September 30, 1974, U.S. annual imports of edible fats and oils averaged 1,084 million pounds and accounted for 9.6 percent of all fats and oils used for food in the United States.

The vegetable oil imported during this period included coconut oil, palm oil, palm kernel oil and olive oil. Imports of palm oil were relatively modest, accounting for about 27 percent of all imports and 2.6 percent of all fats and oils used for food in the United States during the period.

However, imports of palm oil increased dramatically during the 1974/75 marketing year, more than doubling those of the previous marketing year. Imports reached 757 million pounds in 1974/75 compared with 346 million pounds in 1973/74 and a 5-year average of 296 million pounds for the period from October 1969 through September 1974.

In 1974/75, palm oil accounted for 46 percent of all vegetable oil imports, and 6.7 percent of all the edible fats and oils used for food in the United States.

Palm oil imports are expected to increase even further in the current 1975/76 marketing year -- reaching a record 900 million pounds and accounting for 7.7 percent of all edible fats and oils used for food in the United States.

Palm oil has the physical and chemical characteristics to allow it to be used in a wide variety of ways. In the past, however, it has been mostly used in the United States for shortening. For example, in 1974, nearly 90 percent was used for shortening.

Recent research work, however, has successfully fractionated palm oil resulting in a liquid oil comparable to peanut or olive oil in consistency and melting characteristics. This means that palm oil will be able to penetrate the cooking and salad oil market, a major market area from which it previously was excluded.

One inherent drawback of palm oil, however, is that it is a saturated oil, despite its being a vegetable oil.

The upsurge in U.S. imports of palm oil is associated with the dramatic increase in world production of palm oil since 1970. World palm oil production in calendar 1976 is expected to approach 3.2 million metric tons or about 7 billion pounds -- nearly double the production in 1970.

Part of the expansion in world palm oil production during the past several years has been brought about by loans from international lending institutions such as the World Bank. I understand that 32 such loans have been made for palm oil production and processing facilities since 1965.

Much of the palm oil produced from plantations and facilities financed by international lending institutions has gone into export. More detail on this subject will be supplied by the witness from the Treasury Department.

I want to emphasize, Mr. Chairman, that the Agriculture Department is not opposed to the United States helping developing countries develop their agricultural economies. In fact, we support, and are very much in favor of such help. We do believe, however, that such efforts should be directed primarily at helping raise food production in countries which are chronically food-deficit.

We believe extreme caution should be taken when providing assistance for production aimed at export. In such circumstances, care should be taken to avoid disrupting markets of other exporters, including both developing and developed countries.

The recent sharp increase in palm oil exports undoubtedly has had the same impact on Philippine coconut oil and Brazilian soybeans as it has on U.S. soybeans and cottonseed.

The increase in world palm oil production during recent years has been heavily concentrated in Southeast Asia, particularly Malaysia and Indonesia. Production in West Malaysia alone is expected to approach 3 billion pounds in calendar year 1976 -- 2.1 billion pounds or 235 percent more than in 1970.

About 85 percent of the increase in world production of palm oil during the past 5 years has gone into export. Over 90 percent of the increase in Malaysian and Indonesian plam oil production has gone into export since 1970.

Production and exports of palm oil from Malaysia and Indonesia are expected to continue to increase in the decade ahead. The gains in West Malaysia are expected to be particularly sharp. Only about 60 percent of the newly-planted oil palm trees in West Malaysia are at an oil-bearing age. The remainder will begin to bear during the next 4 to 5 years. Oil palm takes 4 to 5 years to reach oil-bearing age. It reaches peak production after about 10 years. It is commercially productive for 30 to 35 years.

Oil palm is highly productive. Oil palm trees yield 4,000 pounds or more of oil per acre. This is in contrast to soybeans, which in the United States yield about 300 to 310 pounds of oil per acre.

Since oil palm yields a much larger quantity of oil per acre, production costs are low relative to soybeans and other oilseeds grown in the United States.

We in the Agriculture Department believe that palm oil can currently be produced in Malaysia for as low as 6½ U.S. cents per pound, ex-plant. This cost of course includes the cost of extracting the oil from the palm fruit.

We estimate it costs about 2 cents a pound to move the palm oil from the mill to export position in Malaysia. The cost of fobbing and for freight to U.S. ports is estimated to be an additional 1.5 cents per pound. Therefore, Malaysian palm oil can be produced and delivered to U.S. ports at an average cost of about 10 cents a pound. Imported palm oil enters the United States free of customs duty.

Soybean oil customarily is quoted at a Decatur, Illinois, base point; while palm oil is quoted at ports of import. Generally, palm oil begins to sell in large volumes whenever it is priced at the port 2 cents a pound or more below the price of soybean oil at Decatur.

This means that soybean oil at Decatur can decline to around 12 cents a pound before palm oil sold in the United States is at a price that no longer covers the cost of production in Malaysia. The current price of soybean oil at Decatur is 16 cents a pound.

Palm oil is currently quoted at Gulf ports at 17¼ cents a pound. Since this price is above that for soybean oil, few new purchases are being made.

The current price for palm oil at Gulf ports reflects an export tax and an export surcharge totaling about 3.75 cents a pound. The export taxes and surcharges are variable. The Malaysian Government adjusts them upward or downward depending on conditions in the world market.

It is important to recognize, however, that when soybean oil prices decline in the United States, it becomes necessary for soybean meal to carry a larger share of the cost of producing soybeans. This, of course, raises the cost of feed to livestock producers.

Economists in the Agriculture Department tell me that the cost of producing soybeans in the Eastern Corn-belt will be about $4.75 a bushel this coming season. I am sure that some farmers will say this figure is too low. Others may say it is too high. I can only say that it is the best that we have at present.

Cost of production figures, of course, vary sharply according to yields per acre. The $4.75 figure includes costs excluding land of $2.25 a bushel and a land charge of $2.50 a bushel. Land charges can be figured various ways. This one is a composite -- or an average -- of the various ways. Despite some uncertainty about it, the cost figure will serve to illustrate the point that I wish to make.

Assuming a production cost of $4.75 a bushel and a crushing charge of 40 cents a bushel -- again, some crushers may argue this is too low while others may contend it is a bit high -- central Illinois soybean growers and crushers would need to receive the equivalent of $5.15 a bushel from the products derived from 1976 crop soybeans if costs are to be covered.

If soybean oil from the 1976 crop sells at 16 cents a pound, 44 percent protein soybean meal will need to sell for $143 a short ton if all grower and crusher costs are to be covered. At 12 cents a pound, a meal price of $162 is needed.

During the past 12 to 18 months, a disporportionate share of the recent increase in world exports of palm oil have come to the United States. This, in part, has been due to the strong U.S. import demand during this period.

It also may be due to the fact that the United States is the only entirely open major import market for palm oil. The United States has no import quotas, and charges no customs duty on palm oil imports.

This is in contrast to the European Community which charges an import duty of 6 percent ad valorem on imports of crude palm oil other than for technical or industrial uses, 4 percent ad valorem on palm oil for technical or industrial uses, and 14 percent ad valorem on refined oil for food uses. Japan charges an import duty of 8 percent ad valorem on both crude and refined palm oil.

Although the U.S. import duty on palm oil is zero or free, it is not bound at zero or free under the General Agreement on Tariffs and Trade (GATT). It is bound at 3 cents a pound except that imported to be used in the manufacture of iron or steel products or of tin plate or terne plate -- estimated to be only about 3 percent of total imports -- which has a GATT binding of zero or free rate. Both rates were bound in 1963 to Indonesia.

Thank you, Mr. Chairman, I will be pleased to respond to any questions you may have.

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Table 13: PALM OIL PRODUCTION IN MAJOR PRODUCING COUNTRIES, FIVE-YEAR AVERAGES AND PERCENTAGE SHARES 1955-74 1/

Country	1955-59		1960-64		1965-69		1970-74	
	1000 MT	Percent	1000 MT	Percent	1000 MT	Percent	1000 MT	Percent
Western Africa	536.06	46.69	763.64	59.93	750.98	53.88	995.23	43.02
Nigeria	433.28	37.74	497.98	39.09	431.60	30.96	533.40	23.06
Ghana	-		32.20	2.53	49.20	3.53	61.00	2.64
Liberia	39.94	3.48	40.48	3.18	41.20	2.96	7.00	0.30
Sierra Leone	-		36.20	2.84	41.40	2.97	58.00	2.51
Dahomey	13.80	1.20	38.80	3.05	32.92	2.36	42.60	1.84
Ivory Coast	7.06	0.61	22.86	1.79	30.50	2.19	91.48	3.95
Togo	1.38	0.12	0.66	0.05	2.80	0.20	4.70	0.20
Cameroon	18.50	1.61	38.64	3.03	48.36	3.47	57.60	2.49
Cent.African Rep.	0.14	0.01	0.88	0.07	0.64	0.05	0.50	0.02
Congo, PR	2.90	0.25	6.62	0.52	6.18	0.44	6.14	0.27
Eq. Guinea	2.28	0.20	3.12	0.24	3.96	0.28	4.16	0.18
Gabon	-		-		1.56	0.11	2.48	0.11
Gambia	0.42	0.04	1.42	0.11	2.08	0.15	2.02	0.09
Guinea	-		8.80	0.69	13.80	0.99	40.56	1.75
Guinea-Bissau	-		6.40	0.50	8.00	0.57	8.00	0.35
São Tome/Principe	2.26	0.20	1.78	0.14	1.18	0.08	0.99	0.04
Angola	14.10	1.23	26.80	2.10	35.60	2.55	74.60	3.22
Eastern Africa	225.80	19.67	225.04	17.67	172.58	12.38	182.82	7.90
Tanzania	0.10	0.01	0.32	0.03	0.78	0.06	1.64	0.07
Burundi	1.42	0.12	1.00	0.08	1.00	0.07	1.00	0.04
Zaire	224.28	19.54	223.72	17.56	170.80	12.25	180.18	7.79
Latin America - Caribbean	17.56	1.53	27.67	2.18	53.48	3.84	92.16	3.98
Brazil	-		1.28	0.10	10.22	0.73	6.78	0.29
Colombia	-		0.01	0.00	9.72	0.70	38.62	1.67
Costa Rica	3.36	0.29	6.00	0.47	10.00	0.72	14.44	0.62
Ecuador	-		0.46	0.04	2.52	0.18	6.00	0.26
Honduras	-		1.12	0.09	1.40	0.10	7.28	0.32
Mexico	11.92	1.04	13.36	1.05	13.00	0.93	11.32	0.49
Paraguay	0.78	0.07	3.94	0.31	5.12	0.37	7.72	0.33
Venezuela	1.50	0.13	1.50	0.12	1.50	0.11		
East Asia - Pacific	218.64	19.05	256.00	20.10	416.86	29.90	1,043.31	45.10
China Rep.	-		-		-		40.00	1.73
Indonesia	155.22	13.52	147.52	11.58	176.42	12.65	273.72	11.84
Malaysia	63.42	5.53	108.48	8.52	240.44	17.25	728.10	31.47
Philippines	-		-		-		1.49	0.06
Others	149.94	13.06	1.47	0.12				
World Total	1,148.00	100.00	1,273.82	100.00	1,393.90	100.00	2,313.52	100.00

1/ Production data for 1974 and 1975: IBRD estimate.
Source: FAO

EPD/CE February 1976

Table 14: PALM OIL WORLD EXPORTS IN MAJOR PRODUCING COUNTRIES, FIVE-YEAR AVERAGES AND PERCENTAGE SHARES, 1955-74 1/

Country	1955-59		1960-64		1965-69		1970-74	
	1000 MT	Percent	1000 MT	Percent	1000 MT	Percent	1000 MT	Percent
WESTERN AFRICA	212.46	36.76	191.67	31.30	105.45	14.96	86.02	6.38
Nigeria	180.40	31.21	147.64	24.11	65.23	9.25	5.96	.44
Ghana			.06	.00	.30	.04	-	
Liberia	.02						.23	.01
Sierra Leone	.62	.11					-	
Dahomey	12.64	2.19	11.61	1.89	10.86	1.54	11.65	.86
Ivory Coast	1.14	.20	.88	.14	.92	.13	48.90	3.62
Togo	.66	.11	.43	.07	0.09	.01	1.09	.08
Cameroon	.46	.09	8.26	1.34	8.42	1.19	7.35	.54
Cent. Afr. Rep.	.01		.01	.00	0.00	.00	.00	.00
Congo, Peo. Rep.	2.98	.52	3.31	.54	0.66	.09	-	
Eq. Guinea	2.81	.49	2.91	.47	5.03	.42	3.00	.22
Gabon			.09	.01	1.07	.15	.22	.01
Gambia								
Guinea								
Guinea-Bassau	.60	.10	.07	.01	0.08	.01	.08	.00
Sao Tome/Principe	1.33	.23	.95	.15	0.54	.07	.19	.01
Angola	8.79	1.52	15.45	2.52	13.44	1.90	7.35	.54
EASTERN AFRICA	160.53	27.78	148.87	24.31	114.24	16.21	89.98	6.67
Tanzania			.08	.01	0.05	.00	.01	.00
Burundi							-	
Zaire	160.53	27.78	148.79	24.30	114.19	16.20	89.97	6.67
LATIN AMERICA-CARIBBEAN	.16	.03	2.28	.37	3.67	.52	5.22	.38
Brazil								
Colombia								
Costa Rica	.01		0.39	.06	.17	.02	.19	.01
Equador								
Honduras	.15	.03	.14	.02	0.83	.11	.49	.03
Mexico								
Paraguay			1.75	.28	2.67	.37	4.54	.33
Venezuela								
EAST ASIA-PACIFIC	198.33	32.58	222.31	36.31	385.44	54.69	903.67	67.05
China Rep.								
Indonesia	121.17	20.96	113.88	18.60	153.56	21.78	229.70	17.04
Malaysia	67.16	11.62	108.43	17.71	231.88	32.90	673.97	50.00
Philippines								
EMENA			0.09	.01			.67	.04
Bahrain							.00	.00
Lebanon							.00	.00
Portugal			..				.67	.04
Spain			0.09	.01				
Syrian Arab Rep.								
OTHERS	16.47	2.85	47.01	7.67	95.93	13.61	262.15	19.45
Austria							-	
Belgium-Luxembourg	6.81	1.18	7.73	1.26	4.96	.70	2.72	.20
Czechoslovakia	.47	.08					-	
Denmark	.04	.01	.07	.01	1.59	.22	.10	.00
France	.72	.12	1.65	.26	.65	.09	1.47	.10
Germany, FR	2.84	.49	3.12	.50	3.54	.50	7.24	.53
Hong Kong	.04	.01					-	
India	.02						.00	.00
Italy			0.10	.01	.14	.01	.61	.04
Japan			.18	.02	.11	.01	.43	.03
Mali							-	
Netherlands	4.38	.76	5.45	.89	10.00	1.41	47.40	3.51
Nicaragua			.24	.03			-	
Niger	.04	.01					-	
Norway							-	
Papua-New Guinea							4.33	.32
Singapore			27.02	4.41	74.15	10.52	196.43	14.57
Sweden	.67	.11	.28	.04	.16	.02	.54	.04
Uganda			.37	.06	.33	.04	.05	.00
United Kingdom	.44	.08	.80	.13	.30	.04	.83	.06
WORLD TOTAL	577.95	100.00	612.23	100.00	704.73	100.00	1,347.71	100.00

1/ Palm Oil export data for 1974: IBRD estimate.

Source: FAO

EPD/CE March 1976
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Table 15: PALM OIL IMPORTS BY MAJOR IMPORTING COUNTRIES, FIVE-YEAR AVERAGES AND PERCENTAGE SHARES

Country	1955-59 1000 MT	1955-59 Percent	1960-64 1000 MT	1960-64 Percent	1965-69 1000 MT	1965-69 Percent	1970-74 1000 MT	1970-74 Percent
EAST AFRICA	3.56	0.60	4.10	0.72	8.76	1.38	18.86	1.51
Kenya	1.52	0.25	1.76	0.30	5.94	0.93	13.36	1.07
Mozambique	0.00	.00	0.00	.00	0.50	0.07	0.88	0.07
Niger	0.00	.00	0.00	.00	0.05	0.00	0.18	0.01
Rhodesia	0.57	0.09	0.36	0.06	0.30	0.04	0.50	0.04
Sudan	1.15	0.19	0.16	0.02	0.07	0.01	0.05	0.00
Tanzania	0.04	0.00	0.06	0.01	0.41	0.06	1.56	0.12
Uganda	0.28	0.04	1.76	0.30	1.43	0.22	2.29	0.18
Zambia	0.00	.00	0.00	.00	0.06	0.00	0.04	0.00
WEST AFRICA	2.86	0.48	3.61	0.63	6.61	1.04	8.64	0.69
Angola	0.00	.00	0.06	0.01	0.34	0.05	0.05	0.00
Cameroon	0.57	0.09	0.15	0.02	0.78	0.12	0.04	0.00
Car	0.00	.00	0.19	0.03	0.93	0.14	1.56	0.12
Congo PR	0.00	.00	0.10	0.01	0.08	0.01	0.49	0.03
Dahomey	0.00	.00	0.00	.00	0.00	0.00	0.00	.00
Eq. Guinea	0.59	0.09	0.00	.00	0.00	.00	0.00	.00
Gabon	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Gambia	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Ghana	0.00	.00	0.21	0.03	1.45	0.22	3.78	0.30
Guinea	0.02	0.00	0.00	.00	0.00	.00	0.00	.00
Ivory Coast	0.90	0.15	2.55	0.44	1.94	0.30	0.00	.00
Liberea	0.00	.00	0.00	.00	0.04	0.00	0.00	.00
Mali	0.00	.00	0.17	0.02	0.12	0.01	0.75	0.06
Senegal	0.20	0.03	0.01	0.00	0.78	0.12	1.86	0.14
Sierra Leone	0.00	.00	0.02	0.00	0.12	0.01	0.11	0.00
Togo	0.58	0.09	0.15	0.02	0.03	0.00	0.00	.00
EAST ASIA AND PACIFIC	11.49	1.94	37.56	6.60	76.67	12.12	229.97	18.42
Khmer Rep.	0.19	0.03	0.00	.00	0.00	.00	0.00	0.00
China Rep.	0.08	0.01	0.00	.00	0.00	.00	1.62	0.12
Fiji	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Hong Kong	0.02	0.00	0.00	.00	0.00	.00	0.17	0.01
Korea Rep.	0.28	0.04	0.00	.00	0.14	0.02	1.03	0.08
Malaysia	5.84	0.98	3.98	0.70	0.12	0.01	1.37	0.10
Papua/NG	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Philippines	5.05	0.85	4.99	0.87	6.99	1.10	4.32	0.34
Singapore	0.00	.00	28.54	5.01	69.34	10.96	221.36	17.73
Thailand	0.03	0.00	0.05	0.00	0.08	0.01	0.10	0.00
SOUTH ASIA	26.97	4.56	34.13	6.00	8.39	1.32	33.70	2.70
Bangladesh	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Burma	.09	0.01	0.00	.00	0.00	.00	0.00	.00
Sri Lanka	0.00	.00	0.00	.00	0.75	0.11	0.50	0.04
India	17.42	2.94	34.13	6.00	5.52	0.87	23.27	1.86
Pakistan	0.00	.00	0.00	.00	2.12	0.33	9.93	0.79
EMENA	9.46	1.60	5.64	0.99	5.63	0.88	8.85	0.70
Algeria	1.87	0.31	0.65	0.11	0.72	0.11	1.00	0.08
Bahrain	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Cyprus	0.00	.00	0.00	.00	0.00	.00	0.06	0.00
Iran	3.21	0.54	0.00	.00	0.00	.00	0.00	.00
Israel	0.12	0.02	0.37	0.06	0.78	0.12	1.08	0.08
Jordan	0.13	0.02	0.72	0.12	1.94	0.30	3.13	0.25
Kuwait	0.00	.00	0.06	0.01	0.03	0.00	0.00	.00
Lebanon	0.08	0.01	0.13	0.02	0.11	0.01	0.07	0.00
Libyan AR	0.00	.00	0.01	0.00	0.06	0.00	0.12	0.00
Malta	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Morrocco	0.41	0.06	0.27	0.04	0.06	0.00	0.00	.00
Syrian	3.51	0.59	3.40	0.59	1.92	0.30	3.39	0.27
Turkey	0.00	.00	0.00	.00	0.01	0.00	0.00	.00
UAR	0.13	0.02	0.03	0.00	0.00	.00	0.00	.00

Table 15: CONTINUED

Country	1955-59 1000 MT	1955-59 Percent	1960-64 1000 MT	1960-64 Percent	1965-69 1000 MT	1965-69 Percent	1970-74 1000 MT	1970-74 Percent
LAC	3.95	0.66	5.25	0.92	4.56	0.72	6.27	0.50
Argentina	0.43	0.07	0.26	0.04	0.05	0.00	0.05	0.00
Barbados	0.00	.00	0.00	.00	0.02	0.00	0.06	0.00
Brazil	0.41	0.06	0.00	.00	0.06	0.00	0.05	0.00
Chile	0.00	.00	0.42	0.07	1.43	0.22	0.02	0.00
Colombia	0.52	0.08	1.11	0.19	0.00	.00	0.00	.00
Costa Rica	0.02	0.00	1.08	0.18	1.61	0.25	0.46	0.03
Ecuador	1.33	0.22	1.51	0.26	0.94	0.14	5.39	0.43
El Salvador	0.00	.00	0.01	0.00	0.00	.00	0.00	.00
Guatemala	0.04	0.00	0.01	0.00	0.02	0.00	0.00	.00
Guyana	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Honduras	0.00	.00	0.29	0.05	0.00	.00	0.06	0.00
Jamaica	0.00	.00	0.02	0.00	0.00	.00	0.00	.00
Martinique	0.00	.00	0.00	.00	0.00	.00	0.01	0.00
Mexico	0.87	0.14	0.17	0.02	0.19	0.03	0.16	0.01
Nicaragua	0.00	.00	0.01	0.00	0.18	0.02	0.00	.00
Peru	0.00	.00	0.09	0.01	0.06	0.00	0.01	0.00
Trinidad	0.17	0.02	0.00	.00	0.00	.00	0.00	.00
Venezuela	0.16	0.02	0.27	0.04	0.00	.00	0.00	.00
OTHERS	532.52	90.13	478.28	84.11	521.97	82.51	941.59	75.45
Australia	0.39	0.06	2.49	0.43	2.96	0.46	10.01	0.80
Austria	2.59	0.43	1.28	0.22	0.19	0.03	3.24	0.25
Bel Lux	41.41	7.00	40.19	7.06	26.51	4.19	25.06	2.00
Canada	17.35	2.93	11.53	2.02	11.08	1.75	18.32	1.46
Denmark	12.04	2.03	3.84	0.67	1.58	0.24	8.56	0.68
Faeroes Isl.	0.00	.00	0.00	.00	0.00	.00	0.00	.00
Finland	0.98	0.16	0.05	0.00	0.02	0.00	0.82	0.06
France	29.99	5.07	34.90	6.13	38.00	6.00	49.14	3.93
Germany FR	72.43	12.25	86.57	15.22	115.07	18.19	140.40	11.25
Iceland	0.00	.00	0.01	0.00	0.00	.00	0.00	.00
Ireland	3.13	0.52	4.14	0.72	3.16	0.49	4.25	0.34
Italy	15.52	2.62	27.59	4.85	38.18	6.03	51.71	4.14
Japan	19.77	3.34	15.30	2.69	25.70	4.06	70.35	5.63
Netherlands	80.80	13.67	74.50	13.10	69.32	10.95	137.56	11.02
New Zealand	0.00	.00	0.01	0.00	0.01	0.00	0.36	0.02
Norway	1.03	0.17	0.64	0.11	0.22	0.03	9.93	0.79
Portugal	9.73	1.64	14.29	2.51	15.48	2.44	18.85	1.51
S. Africa	0.98	0.16	0.00	0.00	0.11	0.01	0.97	0.07
Spain	3.40	0.57	0.22	0.03	2.39	0.37	5.70	0.45
Sweden	1.98	0.33	2.03	0.35	2.54	0.40	7.50	0.60
Switzerland	1.53	0.25	1.55	0.27	2.59	0.40	4.93	0.39
UK	197.05	33.35	136.70	24.04	122.85	19.42	212.13	16.99
US	15.01	2.54	15.25	2.68	37.15	5.87	147.86	11.84
Yugoslavia	0.70	0.11	1.11	0.19	1.31	0.20	0.14	0.01
China PR	0.06	0.01	0.03	0.00	0.32	0.05	0.00	.00
Cuba	0.07	0.01	0.00	0.00	0.00	.00	0.00	.00
Czechoslovakia	0.56	0.09	0.72	0.12	0.79	0.12	5.27	0.42
Hungary	3.09	0.52	1.04	0.18	0.54	0.08	0.12	0.00
Poland	0.93	0.15	1.08	0.18	1.84	0.29	8.41	0.67
USSR	0.00	.00	1.22	0.21	2.06	0.32	0.00	.00
WORLD TOTAL	590.81	100.00	568.57	100.00	632.59	100.00	1,247.88	100.00

EPD/CE
March 1976

Table 16: PRODUCTION COSTS ON A 10,000-ACRE OIL PALM ESTATE

	U.S. dollars
Cost of estate to maturity	4,400,000
Cost of road collection system	680,000
Cost of oil mill (30 tons of F.F.B. per hour)	1,600,000
Cost of staff and workers' quarters	600,000
Cost of administrative centres	80,000
Total establishment cost	7,360,000
Annual cost of capital	
5 percent depreciation of US$5,200,000	260,000
10 percent depreciation on US$260,000 (buildings and machinery)	226,000
8 percent interest on US$7,360,000	588,800
Total	1,074,800
Cost per ton of oil	
Capital	68.00
Upkeep and cultivation	26.00
Harvesting and collection	22.00
Manufacture	8.00
General charges	38.00
Forwarding	6.80
Bulking installation	3.20
Tax (ad valorem US$200)	17.50
Total cost per ton of oil f.o.b.	189.50

Source: Technical and Economic Aspects of the Oil Palm Fruit Processing Industry, UNIDO.

ANNEX II

METHODOLOGICAL NOTE ON DEMAND PROJECTIONS

1. The following model was used to estimate per capita demand for fats and oils in 145 countries:

$$Q = a\ PIND^{b}\left[\frac{Y}{Y+c}\right]$$

where

Q = Per capita demand for fats and oils.

PIND = Price index for fats and oils (1974 = 100), using current exports as weights.

Y = Per capita incomes.

Parameters:

a = 16.8

b = 0.125 (price elasticity of demand for all fats and oils).

c = 729.0

2. A distinctive feature of the demand for fats and oils is its high income elasticity at low levels of per capita income, which declines as incomes increase; it approaches zero as per capita consumption reaches saturation. The first part of the model, a $PIND^{b}$, determines the saturation level of per capita fats and oils consumption; it is estimated at 27.2 kgs. in 1980 and at 27.3 kgs. in 1985.

3. The 1975 edition of the World Bank Atlas contains a list of the countries included in the demand projection for fats and oils. Per capita incomes (in constant 1974 U.S. dollars) were projected for 1980 and 1985 on the basis of population projections prepared by the United Nations and the Bank's latest projections of real GNP for these countries.

4. Table 1, Annex II shows projected demand for 1980 and 1985 by Bank regions. In projecting demand, it was assumed that many developing countries will ration foreign exchange expenditures for imports of fats and oils. Should this not be the case demand for fats and oils in 1980 and 1985 could exceed projections by a margin of 2 to 3 percent.

Table 1: DEMAND FOR FATS AND OILS
Estimated 1974, Projected 1980 and 1985

	1974				1980				1985			
	GNP[1]/	Pop	Fats/Oils Total	Demand Per Capita	GNP[1]/	Pop	Fats/Oils Total	Demand Per Capita	GNP[1]/	Pop	Fats/Oils Total	Demand Per Capita
	(1000 US$)	(1000)	(1000 MT)	(kg.)	(1000 US$)	(1000)	(1000 MT)	(kg.)	(1000 US$)	(1000)	(1000 MT)	(kg.)
Industrialized Countries	3,362,243	668,806	15825	23.7	4,436,655	704,341	16401	23.3	5,914,054	735,443	17118	23.3
Centrally Planned	1,111,656	1,233,787	14525	11.8	1,423,844	1,327,717	16928	12.7	1,823,850	1,415,700	18283	12.9
East Africa	31,428	159,965	878	5.5	38,400	190,084	1066	5.6	46,934	220,141	1204	5.4
West Africa	32,991	139,523	909	6.5	43,221	147,585	1110	7.5	56,938	169,971	1320	7.8
East Asia and Pacific	98,022	311,450	2516	8.1	138,301	370,966	3092	8.3	195,121	421,233	3750	8.9
South Asia	101,146	797,017	3249	4.1	122,278	928,253	3907	4.2	147,911	1,052,585	4385	4.2
EMENA	322,181	282,948	4130	14.6	483,497	339,426	5202	15.3	715,054	381,920	5986	15.7
Western Hemisphere	279,052	295,449	4379	14.8	373,942	355,659	5487	15.4	501,040	408,109	6254	15.3
Total Demand			46411				53200				58300	

1/ GNP in 1974 constant U.S. dollars.

DRAFT
PPollak:dbr
April 27, 1976

FATS AND OILS [1/]

Summary

1. Since the early sixties, the demand for high-protein meals has grown faster than the demand for vegetable oils and thus the market prospects for high-protein meals will remain the key to the supply of vegetable oils. The growing demand for livestock products in developed countries will ensure a continued strong demand for oilseed meals, and the prices of the latter are expected to rise in real terms during the projection period (1976-85). The increase in oilseed processing for meals will raise the supply of vegetable oils; in addition, the projected expansion of livestock and dairy products will add to the supply of animal fats and oils. A further increase in fats and oils supplies will come from tree crops, mainly oilpalm.

2. An oversupply of fats and oils is likely to develop during the first part of the projection period (1976-80). The market prospects for fats and oils between 1980 and 1985 will largely depend on the capability of developing countries to absorb increasing supplies, since per capita consumption in the developed countries will be close to saturation levels by that time. It was assumed that despite potential foreign exchange

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1/ The term "fats and oils" is used in this paper for all fats and oils generally classified as "edible/soap fats and oils". These include soybean oil, sunflower seed oil, groundnut oil, cottonseed oil, rapeseed oil, olive oil, coconut oil, palm kernel oil, palm oil, fish oil, butter, lard and tallow. In recent years, their combined production accounted for about 97 percent of the total production of all major fats and oils.

constraints, developing countries will indeed increase their share of world fats and oils consumption. Thus fats and oils prices (in real terms) are expected to rise slightly towards the mid 1980s. Since the demand for livestock and dairy products will continue to expand during the projection period, the market prospects for high-protein meals will remain favorable.

Demand Outlook

3. Fats and Oils. During the past decade there have been significant shifts in the consumption of fats and oils, away from animal fats and in favor of vegetable oils, and within vegetable oils from hard to soft oils. These changes reflect partly the increased supplies of vegetable oils and partly the growing consumer awareness, in developed countries, of potential health risks associated with the consumption of highly saturated fats and oils.

4. Demand for soft vegetable oils (soybean oil, cottonseed oil, corn oil, etc.) is expected to expand faster than the demand for hard oils. While increasing supplies of soybean oil are likely to be marketed without significant downward pressure on soybean oil prices, relative to those of other fats and oils, increasing quantitities of palm oil will find a market only at growing price discounts.

5. Between 1974 and 1980 world demand for fats and oils is projected to grow at an average annual rate of 2.3 percent: Demand for fats and oils largely depends on per capita income levels. The income elasticity of

demand is high at low income levels, and almost zero at the present per capita income levels of the developed countries. Annual per capita consumption of fats and oils in most developed countries has reached a level of about 25-30 kilograms; in many developing countries it is below 5 kg. Considering the rapidly growing population of these countries, even a small increase in their per capita incomes has a sizeable impact on world fats and oils demand.

6. Regional consumption patterns of fats and oils generally reflect regional production patterns and natural storage conditions. Economic protection and lower transport costs play an important role in the preference of locally produced fats and oils. Most of the fats (margarine, shortening) consumed in temperate zone developed countries are manufactured from soybean, cottonseed and sunflower oils. Coconut oil and palm oil dominate the vegetable oil consumption in tropical and semi-tropical countries.

7. Between 1974 and 1980, industrialized and centrally planned countries will each absorb about one-third of world fats and oils supplies; the remaining one-third will be consumed in developing countries. Among these, the Latin American region will claim the largest share (9.4 percent) of fats and oils supplies; South Asia will absorb about 7.0 percent, East Asia Pacific 5.4 percent, West Africa 2.0 percent and East Africa 1.9 percent. Demand is projected to expand somewhat more slowly between 1980 and 1985, for two reasons. First, because of per capita demand for fats and oils in

industrialized countries will approach the stauration level. Second, because it was assumed that major net importing (developing) countries will face a foreign exchange constraint; and that as a result, per capita fats and oils consumption in these countries will increase only slightly. In South Asia, for example, annual per capita consumption is projected to g ow from 4.1 kg. in 1974 to 4.4 kg. in 1985. During this period, total demand will grow from 3.2 to 4.7 million tons, at an annual average rate slightly above that of these countries' population growth.

8. High-Protein Meals. Because of their high protein content, oilcakes are used increasingly in livestock feeding. Demand for livestock and animal products is closely related to per capita incomes, and as incomes rise, the demand for oilcakes continues to grow long after the direct per capita consumption of fats and oils has reached its saturation level. The long term market outlook thus appears to be brighter for oilseeds with a high meal (protein) content than for those with a high oil content.

9. As noted in last year's forecast, demand for oilcakes is expected to grow during the decade ahead, reflecting economic recovery in the OECD countries. These countries are expected to account for the bulk of demand for meal, but their share will decline as the portion of high protein concentrates in feed rations approaches optimum levels. Additional markets may open up in Eastern Europe, the Soviet Union and some developing countries.

10. Scarce supplies of fishmeal and rising prices during 1973/74 reduced its utilization by pig and poultry producers, and encouraged the

substitution of soybean meal for livestock fattening. This practice is expected to continue, and thus the demand for fishmeal and its price premium over soybean meal are likely to be reduced.

11. A potential threat to the markets for high protein meals is single cell protein (SCP), manufactured mainly from natural gas or petroleum products, which can be used both as a component of animal feeds and for direct human consumption. The market share SCP will capture depends mainly on its price relative to the prices of proteins from existing sources. Although several plants are now in operation, supplies of SCP products have not had a significant impact on markets for high-protein meals, and it is unlikely that SCP will affect these markets before the early eighties.

Supply Outlook

12. The supply of fats and oils is highly price inelastic, for two reasons. First, the supply of oils from tree crops, such as palm oil, coconut oil and palm kernel oil, is highly inelastic, and second, many fats and oils are recovered as by-products in the processing of oilbearing materials (such as meals and meat). Though demand for each of these types of products is separate and affected by different market forces, their supply reflects the demand for both products. Thus the response to rapidly growing demand for one product, for example high-protein meal, leads to rapidly growing supplies of the other product, vegetable oil.

13. In the decade ahead (1976-85), production of fats and oils is again expected to grow at an average annual rate of 2.6 percent as in the

past two decades. Reflecting the continuing strong demand for livestock products, most of the oil supply will come from oilseeds crushed for meal, and from soybeans in particular. The projected expansion in livestock production will, in turn, increase the output of animal fats. The supply of fats and oils will be further increased by the expansion in the production of palm oil, as extensive plantings during the late 1960s reach their productive stage. The growth of output of marine oils is expected to grow at only 1.7 percent, as conventional fish resources have already reached or surpassed their maximum sustainable yield. An increasing share of future marine oil production will come from currently unutilized species, most of them in polar waters. World production of fishmeal is expected to increase, below the long term trend, at an average rate of about 1.5 percent between 1976 and 1985.

Price Developments

14. Real prices of fats and oils (in 1974 dollars) displayed no clear trend between 1960 and 1972. In 1973 they began to increase sharply, mainly in response to a shortfall in supplies of lauric oils. Prices of fats and oils and also of oilcakes advanced further in 1974, due to a 20.4 percent decline in the US production of soybeans, which was only partially offset by increased output in Brazil. In 1974, prices for high protein meals dropped because of the worldwide recession and a decline in livestock production. A 17 percent increase in world soybean production combined

with good harvests of other oilseed crops during 1975 caused real prices for fats and oils to fall to about their average level of the sixties. Prices for most oilcakes declined only slightly.

15. Barring any major reductions in supplies, real prices for fats and oils are expected to decline in the first half of the projection period (1976-80) from their extremely high levels of 1974. In the second half of the projection period, population growth and rising per capita incomes in developing countries are expected to raise their domestic consumption of fats and oils. Hence, prices for vegetable oils and fats are expected to drift upwards again between 1980 and 1985. Projections as to their exact level vary with assumptions as to the relative strength of supply and demand factors.

Methodology

16. Yearly supplies of oilseeds were projected on the basis of past growth rates. Projected growth rates were adjusted for some cropse to take into account additional information on the future supply situation. It was assumed that the total production of any oilseed crop will be crushed in the year it is harvested. Knowledge of the oil and meal yields of each crop allows the supply of the respective oil and meal in each year to be calculated. For tree crops, the number of trees, their variety and age composition provide a strong indication of their supply potential. However, actual supply projections for tree crops are made more difficult by wide year-to-year fluctuations in yields. The potential supply of annual field crops such as soybeans and groundnuts depends largely on the relative

profitability of alternative crops producers could plant. 1/ Freqent changes in relative price levels and production costs of annual crops widen the margin of error in projecting the production of annual crops. Projected growth rates for the supply of oilseed crops reflect these factors. Projected supplies therefore represent the most likely trend value for each year. Actual supplies will probably fluctuate around projected trends.

17. The demand for fats and oils is projected for 145 countries individually on the basis of projected (real) per capita incomes, population and a price index for fats and oils. Prices for individual fats and oils are determined simultaneously be world supplies of all fats and oils and by the ratio between stocks and demand. Projected GNP determines the demand for high protein meals.

18. Because oil and meal are recovered in nearly fixed proportions, the prices of the ra material (oilseed) is determined by the combined value of the extracted oil and meal minus the crushing margin. Given a positive crushing margin and a set of projected prices for oil and meal, the following relationship was used to project prices for oilseeds:

$$POS_k = POL_i \; YO_i + PML_j \; YM_j - CM_k$$

where

POS_k = Price of the oilseed crop (k)

YO_i = Yield of oil (i)

YM_j = Yield of meal (j)

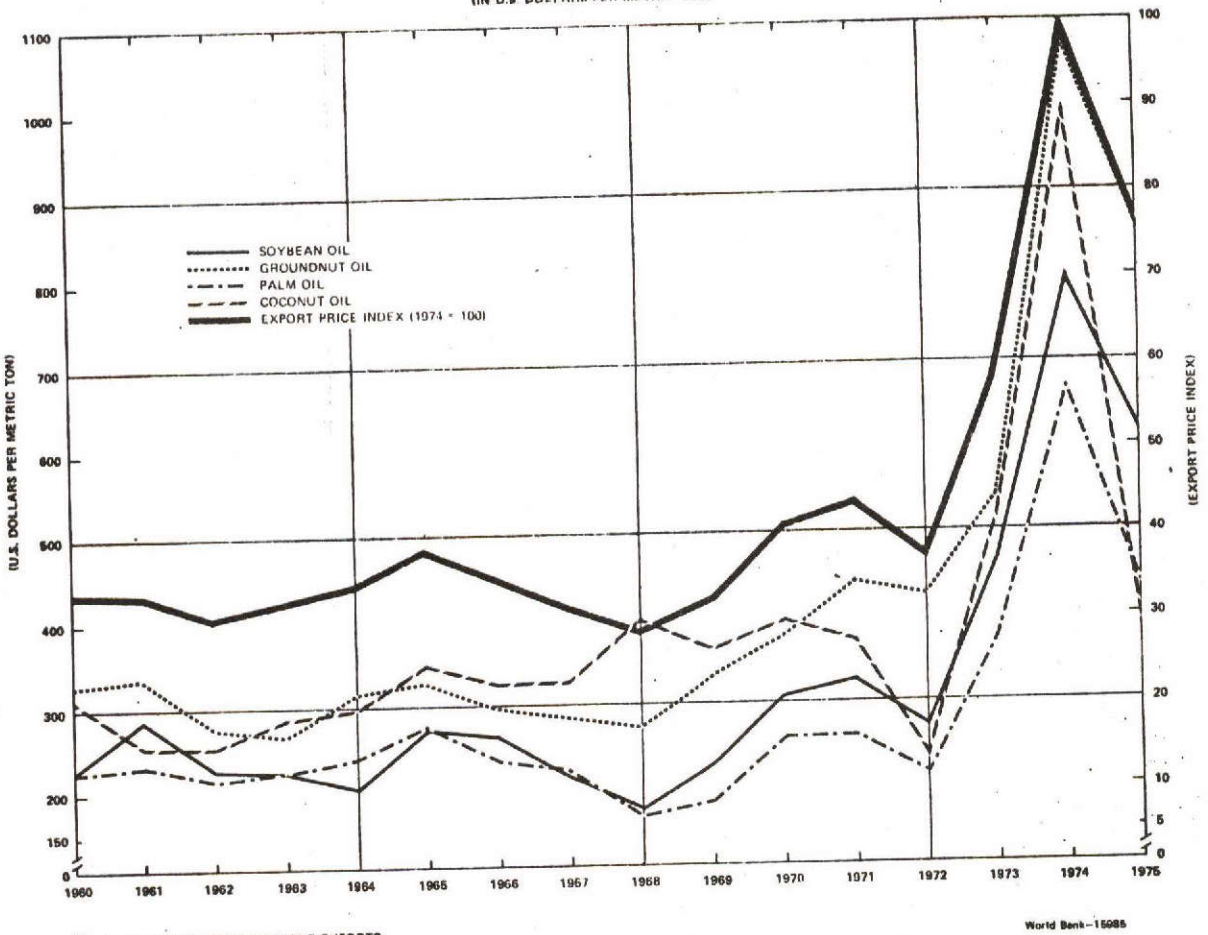
CM_k = Crushing margin for oilseed (k)

Crushing margins were projected at 10 percent of the combined value of the oil and the meal.

1/ It was assumed that the area of land suitable for the production of annual crops remains fixed for the projection period.

Chart 1

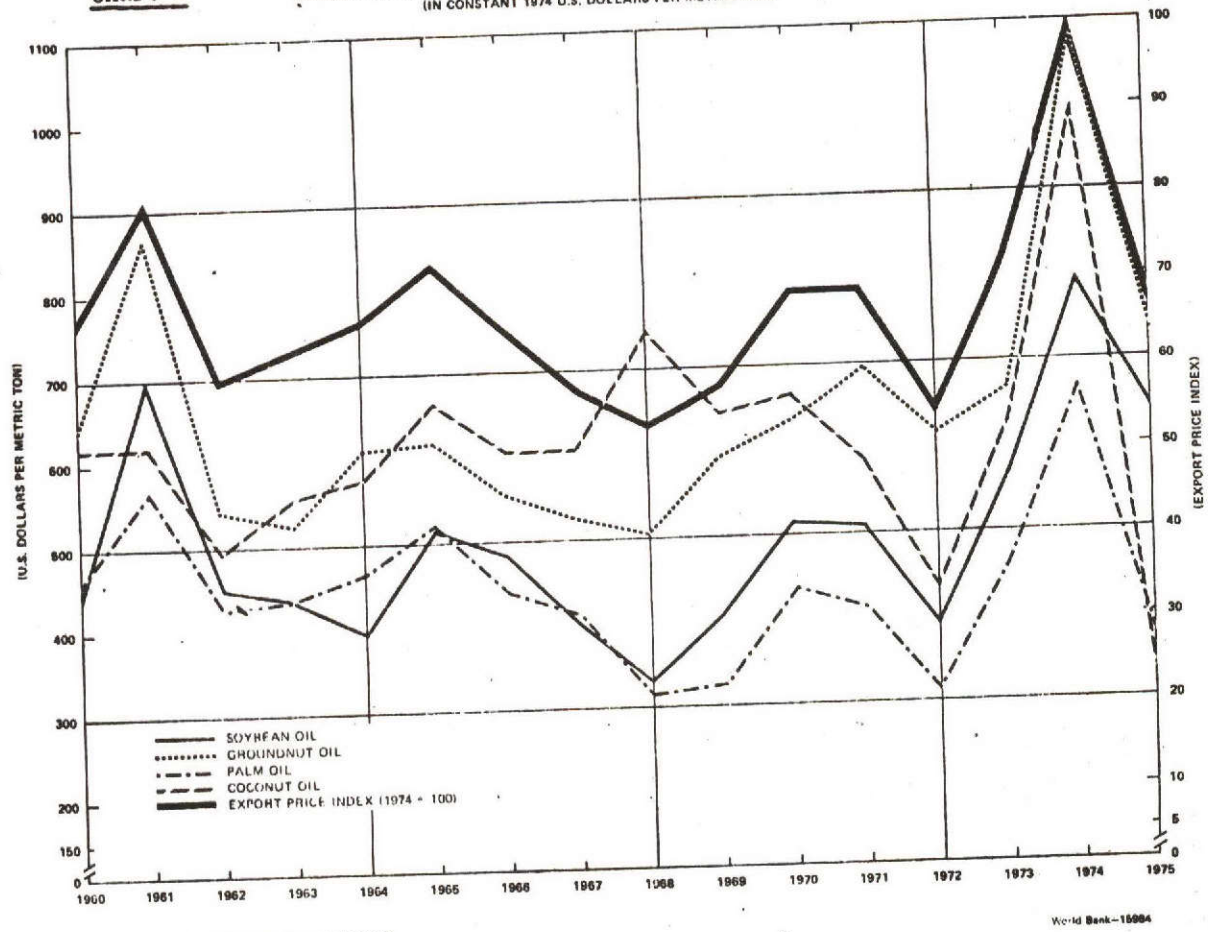
PRICES AND EXPORT PRICE INDEX[1/] OF SELECTED FATS AND OILS, 1960–75
(IN U.S. DOLLARS PER METRIC TON)



1/ PRICES WEIGHTED BY CURRENT EXPORTS

Chart 2

PRICES AND EXPORT PRICE INDEX[1/] OF SELECTED FATS AND OILS, 1960–75
(IN CONSTANT 1974 U.S. DOLLARS PER METRIC TON)



1/ PRICES WEIGHTED BY CURRENT EXPORTS

Table 3: WORLD EXPORTS OF SELECTED OILSEEDS, FATS AND OILS (FAT OR OIL EQUIVALENT), ACTUAL 1960, AVERAGE 1967-69, 1975 PROJECTED 1980 AND 1985

(In 1000 metric tons)

Fat/Oil	1960		1967-69		1975		1980		1985	
	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share
Soybean Oil	1,400	19.8	1,991	19.8	3,565	27.1	4,900	28.0	5,700	27.8
Sunflowerseed Oil	245	3.3	1,138	11.3	765	5.8	1,250	7.2	1,300	6.3
Cottonseed Oil	294	4.1	226	2.3	425	3.2	460	2.6	510	2.5
Groundnut Oil	826	11.4	1,037	10.3	745	5.7	940	5.4	950	4.6
Rapeseed Oil	92	1.3	439	4.4	745	5.7	920	5.3	1,020	5.0
Olive Oil	69	1.0	82	0.8	63	0.5	100	0.6	110	0.6
Palm Oil	587	8.1	607	6.0	1,800	13.7	3,050	17.5	4,690	22.9
Coconut Oil	1,152	15.9	1,182	11.8	1,425	10.8	1,650	9.4	1,750	8.5
Palm Kernel Oil	407	5.6	299	3.0	396	3.0	420	2.4	435	2.1
Fish Oil	222	3.1	672	7.7	600	4.6	740	4.2	790	3.9
Butter	426	5.9	514	5.1	717	5.5	790	4.5	830	4.1
Tallow	1,076	14.9	1,447	14.4	1,400	10.7	1,820	10.4	1,950	9.5
Lard	407	5.6	409	4.1	490	3.7	440	2.5	460	2.2
TOTAL	7,243	100.0	10,043	100.0	13,136	100.0	17,480	100.0	20,495	100.0

Sources: USDA: 1960-69
IBRD: 1975-85

Table 4: PRICES AND PRICE INDEX OF SELECTED FATS AND OILS 1/ CIF EUROPE, 1960-1980 AND 1985

(In constant US dollars per metric ton)

Year	Soybean	Sunflower	Cottonseed	Groundnut	Rapeseed	Olive	Palm	Coconut	Palm Kernel	Fish	Lard	Butter	Tallow	Price Index
1960	444.9	480.5	464.7	644.7	433.1	1,156.8	450.9	617.0	626.9	306.5	423.2	1,682.8	252.8	66.3
61	699.3	757.8	743.2	806.5	682.3	1,367.0	565.3	618.9	640.8	338.7	548.2	1,720.3	385.0	80.8
62	445.8	483.1	522.4	540.1	434.0	1,239.2	424.2	492.9	500.8	204.2	428.1	1,614.3	268.9	59.8
63	434.9	460.2	473.9	522.6	419.3	1,698.5	432.9	557.7	559.7	312.0	421.2	1,755.1	275.0	62.9
64	397.0	493.8	484.1	610.0	488.0	1,134.8	464.8	575.1	579.0	393.1	486.1	1,802.9	325.3	66.1
1965	515.1	560.9	539.3	618.1	501.7	1,264.8	520.8	663.9	673.4	414.0	558.9	1,751.2	381.5	72.9
66	486.8	490.6	621.2	552.1	455.1	1,233.0	440.2	604.4	505.5	365.6	526.0	1,553.8	335.8	65.0
67	399.8	392.4	699.6	523.8	381.3	1,277.1	414.6	607.1	460.9	235.1	379.4	1,512.1	266.5	57.8
68	331.3	320.1	567.7	504.4	299.6	1,267.4	314.5	742.6	683.0	184.3	314.5	1,319.6	240.1	53.2
69	409.0	382.1	522.0	595.5	358.7	1,194.6	324.7	647.5	548.9	269.1	387.4	1,271.7	297.3	57.7
1970	514.8	555.1	593.7	635.6	491.4	1,172.2	436.0	665.8	719.4	415.9	454.5	1,229.2	338.3	68.7
71	510.0	592.1	619.0	696.4	465.8	1,148.0	412.1	585.8	529.0	349.0	413.7	1,654.8	309.5	68.8
72	392.0	473.4	470.5	618.6	336.9	1,330.0	315.1	339.8	354.3	264.3	364.5	1,755.5	259.9	54.1
73	569.2	587.6	612.1	668.4	483.5	1,712.0	462.7	628.0	601.1	418.7	456.6	1,193.5	435.8	72.3
74	795.0	983.0	939.0	1,077.0	745.0	2,174.0	669.0	998.0	1,010.0	559.0	602.0	1,216.0	448.0	100.0
1975	540.7	645.5	634.1	748.5	481.3	2,127.7	378.2	343.3	383.4	300.5	418.4	1,457.8	297.0	66.0
76	308.3	492.0	528.9	553.6	319.8	1,927.2	303.4	278.8	295.2	270.6	336.2	1,443.3	311.6	51.2
77	314.7	465.2	490.2	540.1	314.7	1,639.9	300.3	304.8	320.0	254.9	289.7	1,300.3	278.9	48
78	325.0	439.9	455.3	528.9	315.2	1,401.1	303.3	339.8	339.8	240.3	299.8	1,169.9	259.9	47.6
79	335.0	470.0	419.8	518.8	310.3	1,194.8	307.0	380.0	370.2	230.1	299.8	1,059.8	245.1	47.3
1980	345.9	419.6	389.7	509.1	308.1	1,020.0	310.0	422.0	400.1	219.8	310.0	954.8	219.8	46.5
1985	395.2	439.9	490.7	573.2	362.6	1,211.5	320.0	475.1	460.3	264.9	345.0	1,109.9	257.1	52.2

1/ Descriptions:

Soybean Oil: Crude, US, CIF Rotterdam.
Sunflower Oil: Any origin, ex-tank Rotterdam.
Cottonseed Oil: US, PBSY, CIF Rotterdam.
Groundnut Oil: Nigerian/Gambian/Any Origin, CIF Europe.
Rapeseed Oil: Dutch, FOB ex-mill.
Olive Oil: Spanish, edible, 1% drums.
Palm Oil: Malaysian, 5% CIF UK.

Price Index weighted by constant world exports (1974=100).

Coconut Oil: Philippines/Indonesian, bulk, CIF Rotterdam. For 1973, Dutch, 5%, ex-mill; prior to 1973, White Ceylon, 1% bulk, ex-tank Rotterdam.
Palm Kernel Oil: West African, CIF UK.
Fish Oil: Any origin, crude, CIF Europe. Prior to March 1973, Peruvian, semi-refined.
Lard: EEC refining quality, CIF UK. Prior to February 1973, US, Prime Steam, CIF UK.
Butter: Dutch, bulk, unsalted, UK markets.
Tallow: US, bulk, bleachable fancy, CIF Rotterdam.

Table 5: EXTRACTION RATES OF OIL, CAKE AND PROTEIN FOR SELECTED OILSEEDS

(in percent)

	Crude Oil	Oilcake	Raw Protein Content of Cake
Soybeans	17.5	80.5	46.0
Cottonseed	17.5	59.0	41.0
Groundnuts, shelled	44.5	55.0	52.0
Sunflowerseed	44.0	55.0	40.0
Rapeseed	38.5	59.0	34.0
Sesame Seed	47.0	52.0	40.0
Copra	63.5	36.0	22.0
Palm Kernels	46.5	52.5	23.0
Linseed	34.0	63.0	36.0
Castor Beans	45.0	n.a.	n.a.
Other Oilseeds	33.0	60.0	37.0
Fishmeal	n.a.	n.a.	65.0

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Shrimp boats at Galveston, an important center for the shrimping industry. The port of Galveston marks its 150th anniversary in 1975, and U.S. farm exports have played a key role in its growth. See page 8.

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Modest Recovery Seen in '76 For U.S. Fats and Oils Exports

By ALAN E. HOLZ
Foreign Commodity Analysis, Fats and Oils
Foreign Agricultural Service

STRONG PRICES for most vegetable oils during the past 2 years have set the stage for a worldwide surge in oil production in 1976—a situation that points to keen competition in U.S. export markets next year. As a result, U.S. fats and oils exports in 1976 are targeted at just 4.25 million metric tons, oil basis, slightly over this year's depressed volume.

With foreign oil production expected to swell to 37 million metric tons in 1976, the United States is obviously no longer the "only store in town," and foreign customers are sure to be shopping around. Brazil's bite into U.S. markets, for example, is likely to be even bigger next year, especially since the record soybean crop expected next spring could boost oil output by 20 percent. And more Malaysian oil palm trees are now reaching bearing age, releasing huge quantities of this oil into world markets.

Globally, production of fats and oils in 1976 is now estimated at 48.6 million tons[1]—6 percent or 2.9 million tons above this year's rather poor showing. The increase is based on Northern Hemisphere crops already harvested in last-half 1975, combined with estimates for Southern Hemisphere crops yet to be harvested in the first half of 1976.

In the Northern Hemisphere, the United States, Canada, and India all registered net gains in oilseed production, while the Soviet Union chalked up a loss this year. In fact, the spurt in U.S. production, spearheaded by bumper soybean crops, will be responsible for about 28 percent of the annual world increase. The 1975 U.S. soybean crop at 1.52 billion bushels (November estimate) is 23 percent higher than 1974's, an increase which translates into an additional 1.3 million tons of oil. On the other hand, U.S. cottonseed output, depressed by reduced cotton planting, will be just 3.2 million tons, a loss of a fifth or 160,000 tons, oil basis, from last year.

In other northern areas, Canada's rapeseed crop at 1.6 million tons will add 170,000 million tons more oil to world supplies than last year—a rise of 40 percent. In India, an improved peanut crop, totaling 6.4 million tons, will increase oil supplies by 28 percent or 340,000 tons over last year.

Olive oil is following suit in 1975/76—an on-year for production—with output projected to be roughly 200,000 tons or a sixth above the reduced 1974/75 harvest.

Bucking the trend is the Soviet Union, where a poor sunflowerseed crop of probably less than 5.5 million tons will reduce oil supplies by a fifth or 500,000 tons below 1974's—a deficit likely to be remedied by imports of Brazilian beans, but which will reduce exports of sunflowerseed oil in 1976.

MOVING TO the Southern Hemisphere and crops not yet harvested, the outlook is as follows: Brazil—a key U.S. competitor—is expected to harvest about 11.5 million tons of soybeans next April and May which will represent 310,000 tons of oil more than this year's large volume—a 20 percent gain, in fact. In the Philippines, copra output is expected to total nearly 2.4 million tons—up 150,000 tons oil basis—or more than 10 percent over this year's expanded volume. Finally, output in the five top palm oil producer-exporter countries is forecast at 2.3 million tons—up 15 percent or 300,000 tons over this year's volume.

From this sharply higher production, world exports of fats and oils in 1976 are slated to expand by perhaps a million tons to nearly 15 million—largest volume in history. The vast majority

[1] **Data compiled as of November 19, 1975. Includes the oil equivalent of oilseeds and animal and marine oils, calculated on the basis of assumed oil extraction rates applied to that portion of each crop available for crushing and/or export and not actual crushings.**

of the expected trade thrust will be in soybean, palm, rapeseed, and coconut oils, most of which are available for export—as opposed to gains in olive and peanut oil, which will be retained for domestic consumption. Even with exports advancing strongly, however, the 2.9-million-ton production expansion expected in 1976 for these oils means stock may rise sharply in certain top producer-exporter countries, with soybean stocks probably heading the list.

But in spite of the predicted upturn in total world trade, U.S. soybean and oil exports are likely to be well under the peak levels achieved during 1970-74 for the second consecutive year. In 1976, U.S. exports will account for only 12 percent of the oil trade growth—compared with 58 percent of the annual growth during the 1965-74 period.

A NUMBER of factors cast a shadow on U.S. exports in 1975. Among these were heavy gains in foreign availabilities; high prices for most oils and fats, which may have reduced foreign purchases and caused some reduction in consumer stocks, as well as consumption; discounted palm oil prices, which caused price-conscious consumers to use more of this lower-priced oil; economic uncertainty, high unemployment, and reduced real incomes; and sharply reduced U.S. tallow and grease output, which cut export availability.

A key factor in this unusual year was the sharp decline in the 1974 U.S. soybean harvest. U.S. producers tended to hold their soybeans in view of market uncertainty. Poor growing conditions affected the oil content of the 1974 U.S. crop, causing some foreign customers to purchase increased quantities of Brazilian beans.

Vegetable oil prices have for some time been in a cyclical downturn—in relation to meal prices—a trend that could be temporarily interrupted, but that will probably continue next season.

This year, however, the situation is a little brighter. Lower prices and improved economic conditions could boost demand and lead to a resurgence of consumer stockbuilding. U.S. vegetable oil prices have declined sharply in recent months—a factor likely to stimulate domestic demand. In November, U.S. prices averaged about 19 cents per pound—less than half those of the same month a year ago.

If palm oil prices remain significantly under soybean oil prices, however, U.S. imports of palm oil will continue to expand in 1976, although probably less rapidly than in 1975. In 1975, the United States took over 20 percent of world palm oil exports, compared with 13 percent in 1974. Added to coconut oil imports, this import surge reduced U.S. soybean crushing and consumption requirements in 1974/75 by the oil fraction of 40 million bushels of soybeans.

Next year, U.S. exports will probably benefit from an expected rise in foreign oil consumption, although the lion's share will be taken from the 1.5-million-ton projected gain in foreign production. Apparent foreign consumption of oils and fats is estimated at just under 39 million tons in 1975—350,000 tons under 1974's. Actually, however, consumption probably remained about level with 1974's, owing to the large stock levels that were built during the 1974 production boom.

In brief, the world seems to be entering a period of more abundant supplies of fats and oils. Producers are likely to continue to face increasing production costs, but prices are likely to become more competitive, as producing countries strive to move more of their products into consumption.

In view of this, a closer look at the competition is in order.

The largest single competitive element that the United States faces in world markets is the large increase in palm oil exports being generated in equatorial countries such as West Malaysia, Sabah, Indonesia, and the Ivory Coast.

THE DIE was cast years ago when sizable acreages of this tree crop were established on plantations as an alternative crop for rubber. In recent years, an increasing number of these trees are coming to bearing age, while other trees planted years earlier are already producing larger yields as the bearing surfaces of the trees expand.

Most of this production expansion is not used locally but exported instead. Variable costs of production are relatively low and the product has been selling at a substantial discount relative to other oils such as soybean and cottonseed. The average oil palm plantation in major exporting countries produces over 10 times as much oil per acre as an average acre of U.S. soybeans.

Part of the reduction in U.S. soybean oil usage reflects the fact that large quantities of palm oil have been imported duty-free at discount prices. Competition from palm oil will continue for a good long while because many of the trees have been planted since 1960 and the economic life of the trees is approximately 30 to 35 years.

The majority of the expansion is underway in Malaysia, where oil palm plantings began to expand significantly in the early 1960's, promoted in part by rubber producers suffering the effects of declining rubber prices. The success of these private oil palm plantations stimulated additional plantings and attracted the interest of the country's economic planners.

Since the late 1960's, the bulk of Malaysia's oil palm expansion has been promoted by the country's Federal Land Development Authority, which has developed smallholder estates with the aid of foreign capital from several international financial agencies. The United States has traditionally been a significant contributor to these agencies ,which provide funds for a variety of development projects, including palm oil, in many countries.

Brazil's expanding soybean output has been the second largest single source of competition for U.S. exports of oils and fats in world markets. Brazil's expansion basically has resulted from four factors:

- Nearly one-half of Brazil's soybean crop is produced in Rio Grande do Sul, where a large share of the area is double cropped with wheat. Because of the Brazilian Government's desire to achieve self-sufficiency in wheat production, wheat acreage will likely expand and further gains from double cropped soybeans are expected.
- Brazil during the past decade has greatly expanded its cultivated soybean acreage. Sizable areas, potentially suitable for soybean production, are still not under cultivation, so that additional acreage expansion from new land is likely in future years if producer prices continue to favor this crop.
- Most Brazilian farmers, unlike many U.S. farmers, prefer to grow soybeans rather than corn. Brazilian corn yields on open-pollinated varieties without nitrogen fertilizer are about the same as bean yields, but prices for soybeans have been nearly double those for corn, so Brazilian farmers make more money producing beans than corn.
- Although most of Brazil's production gains have been from acreage expansion, yields have been trending up-

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FOREIGN AGRICULTURE

U.S. Fats and Oils Exports

Continued from page 3

ward and further gains appear likely. Brazilian soybean yields have in recent years averaged about 10 to 15 percent under U.S. yields, but that gap seems to be narrowing.

In 1976, soybean acreage expansion in Brazil could get yet another boost as coffee producers plant some of their frost-killed coffee acreage in soybeans. The Brazilian Government has guaranteed soybean growers a minimum price of 75 cruzeiros per 60 kilogram bag for the 1976 crop, compared with 60 per bag in 1975. Thus, in current U.S. dollar equivalents, Brazilian farmers will receive a minimum of $4.07 per bushel in 1976 compared with $3.89 a year earlier. The small relative change reflects the fact that Brazilian currency has been devalued against the U.S. dollar by some 20 percent in the past year.

A third competitive factor, which has been cyclical in nature, is the sharply expanding copra and coconut oil exports from the Philippines. This gain, which largely reflects improved rainfall, is increasing competition this year and will continue to do so in 1976. Like palm oil, a sizable part of this increase may find a home in the United States if prices remain strongly competitive.

Yet another factor: Canadian rapeseed production is making a comeback this year on increased acreage. Competition from this crop has been strong from time to time in Japan, Europe, and other markets. Finally, expanding peanut production in Nigeria and Senegal will likely lead to some stepped-up competition in European markets.

U.S. Exports to Hong Kong

Continued from page 8

percent above the previous year's 1,888,000 hundredweight. Major competitors continued to be the People's Republic of China, with 13.2 percent of the market; Taiwan, 6.8 percent; and Israel, 2 percent.

By contrast, U.S. lemon shipments to Hong Kong plunged 30 percent in the second half of fiscal 1975, while shipments of grapefruit remained virtually static.

Belt-tightening contributed to sharp declines in Hong Kong's wheat imports in the last half of fiscal 1975—off 30.3 percent from fiscal 1974—but full year takings of U.S. wheat were actually up on a volume basis to slightly over 80,000 metric tons from 73,000 in fiscal 1974. The U.S. growth came as share of the market rose to a peak 76.1 percent in July-December 1974 from 62.3 percent in the same period of 1973. In the last half of the year, the share stood at 71.9 percent, compared with 53.8 percent in January-June 1974, but volume of sales was down in that period, as was value.

Local millers believe another 50,000 metric tons of wheat will be imported in the first half of fiscal 1976, with prospects for sales of U.S. wheat looking good.

After making an unusually large purchase of U.S. rice in the first half of fiscal 1974—61,344 tons, or 29 percent of all imports—Hong Kong reduced such imports to only 500 tons in the last half of fiscal 1975. The reduction came when Hong Kong returned to more normal buying patterns after having made heavy purchases of U.S. rice during the Asian rice shortfall.

As is traditionally the case, imports from the United States were overshadowed by those from the People's Republic of China and Thailand, which last year held 54.6 and 39.6 percent of the market, respectively.

Prospects for sales of U.S. rice continue bleak for the first half of fiscal 1976 since the c&f Hong Kong price of U.S. rice is about $90 per metric ton above that for Thai rice.

Hong Kong has also recently cut back on its imports of fresh, chilled and frozen chickens, as well as on takings of poultry wings—the main product moving from the United States. Imports of the latter declined from a peak 6,452 metric tons in January-June 1974 to 5,548 tons in the same period of 1975, while U.S. share of the market slipped from 71.2 percent to 65.5 percent. Major U.S. competitors were the Netherlands, West Germany, Canada, and Denmark.

On the bright side, U.S. eggs moved to Hong Kong throughout fiscal 1975 after having gained a small foothold in that market a year earlier. During fiscal 1975, Hong Kong's imports of U.S. eggs totaled around 166,000 gross, or about 2.5 percent of total imports. The People's Republic of China, by contrast, dominated the market, supplying close to 90 percent of all egg imports in fiscal 1975. Other suppliers were Thailand and South Korea.

—Based on a dispatch from
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U.S. Agricultural Officer, Hong Kong

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SUMMARY

With lower soybean prices and some pickup in economic activity, the demand for U.S. soybeans is strengthening both here and abroad. U.S. use during September-December 1975 was up a fifth from the previous year's depressed levels, as both crush and exports gained. Nevertheless, soybean supplies are record large, and a sharp buildup in carryout stocks is anticipated.

Prices received by farmers for soybeans dropped about $1 per bushel during September-December to $4.28 in December. Prices over the balance of the year probably will fluctuate within a relatively narrow range, averaging below the $5.37 received during February-August 1975. The outlook for 1976 U.S. soybean production, developments affecting demand, and the size of the 1976 Brazilian soybean crop to be harvested during April-May all lend uncertainty about the course of U.S. soybean prices the rest of the year.

Early January planting intentions indicate about 51 million acres (20.6 million hectares) of soybeans will be planted this spring, 3.6 million or 7 percent less than in 1975. Plantings are expected to be down in the Corn Belt where soybean/corn price relationships favor corn. However, cuts are also being made in the Delta and Southeast where prospective cotton acreage is up sharply. Even with the anticipated cutback in acreage, soybean supplies in 1976/77 will be adequate, assuming normal 1976 yields, because of the large carryover in sight next fall.

Soybean supplies for the current marketing year total 1.7 billion bushels, a fourth more than in 1974/75. This consists of the 1975 soybean crop of 1,521 million bushels and carryin stocks last September 1 of 185 million. Acreage harvested was up slightly, but yields per acre were record high—28.4 bushels, or 5.2 above the drought-reduced 1974 harvest.

With record supplies and somewhat lower prices, soybean use this marketing year is expected to total around 1.4 billion bushels compared with 1.2 billion in 1974/75. The rates of economic recovery and expansion in the livestock and poultry indus-

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tries are contributing to expanded soybean utilization. Also, U.S. soybeans are facing tough foreign competition.

The soybean crush in 1975/76 is forecast at around 800 million bushels, up some 100 million from last season. Through December the crush totaled 277 million bushels, 17 percent ahead of September-December 1974. There has been a sharp recovery in the domestic use of soybean oil and meal, but exports are lagging year ago rates. Soybean exports this season are estimated at around 500 million bushels, compared with 421 million shipped in 1974/75. Inspections for export through late January were running a fourth ahead of last year's rate. Most of the increase is to West European countries where livestock and poultry feeding has picked up in response to relatively low meal prices compared with those of feed grains.

Soybean oil supplies are now estimated at around 9.2 billion pounds, up a billion from 1974/75. Domestic disappearance so far is up 12 percent and for the entire marketing year may reach 7.2 billion pounds compared with 6.6 billion last year. Exports during October-December were down 60 percent and for the year likely will drop well below the 1974/75 level of 1.0 billion pounds. Increased foreign supplies of competitive oilseeds and fats and oils—mainly palm and coconut oils—along with reduced P.L. 480 shipments, are bearish factors. Based on these prospects, soybean oil stocks by next October 1 would rise to over a billion pounds compared with 0.6 billion on October 1, 1975. Soybean oil prices (crude, Decatur) have declined from 21 cents per pound in October to 15 cents in late January. A year ago they were at the 33-cent level. Prices probably will stay relatively low the balance of this marketing year as stocks remain large.

Soybean meal output for 1975/76 may reach 19 million short tons, more than 2 million above last year. Domestic use is expected to exceed 14 million tons, up nearly 2 million, as livestock feeding picks up in response to more favorable feeding ratios. Exports may increase some from the 4.3 million ton level of 1974/75. Soybean meal prices (44 percent protein, Decatur) remained relatively stable during October-January averaging about $125 per ton compared with $145 last year.

Cottonseed oil supplies, at 1.2 billion pounds, are 15 percent below 1974/75. Domestic use may total 0.5 billion pounds and exports 0.6 billion pounds, leaving small carryover stocks. Because of the smaller supplies and relatively strong demand, cottonseed oil prices have commanded a higher than usual premium above soybean oil. During October-January 1975/76, crude oil prices in the Mississippi Valley averaged 23 cents, 5 cents above soybean oil but sharply under year-earlier levels.

Commercial lard production is running a fourth below year earlier levels and for all of 1975/76 probably will drop below a billion pounds, some 15 percent under 1974/75 and the lowest on record. Hog slaughter during October-December was off a fifth and yields per hog are down 2 pounds. Domestic use and exports are both trailing year-earlier rates. Despite the relatively tight supply situation, lard prices (loose, Chicago) declined from around 35 cents per pound in October to 17 cents in January. This is associated with the general drop in all edible fat and oil prices.

FATS AND OILS SITUATION

SITUATION AND OUTLOOK

1976 Soybean Planting Intentions Down

Based on the USDA planting intentions survey as of January 1, farmers will seed 51 million acres to soybeans in 1976, compared with 54.6 million in 1975 and the record 56.7 million in 1973. Early season plans indicate acreage would be down 6 percent in the Corn Belt States and 8 percent in the Delta and Southeastern States where prospective cotton acreages are up sharply. Prospective 1976 corn acreage, at 81 million, is up 3 million from last year, while planned acreage of upland cotton, at 11.2 million, is up 1.6 million.

The shift in plantings from soybeans to corn and cotton reflects the more favorable price prospects for these commodities relative to soybeans. The soybean/corn price ratio of 1.8 to 1 in December 1975 favored corn plantings, and the prospective March 1976 price ratio (based on futures prices) is the same. A ratio of about 2½ to 1 would be favorable for expanding soybean plantings. Cotton prices also are more favorable this year than last, while soybean prices have declined. In late January spot cotton (1 1-16 mid Memphis) was 56 cents per pound compared with 36 cents a year ago. On the other hand, spot soybean prices (No. 1 yellow, Chicago) were $4.48 per bushel in late January versus $6.16 the same time in 1975.

The 1976 feed grain, wheat, and upland cotton programs have no set-aside requirements and no land will be removed from production under these programs. So with full agricultural production, the competition for acreage among soybeans, feed grains, cotton and other crops reflect alternative economic prospects for these crops.

Flaxseed acreage would drop in 1976, by around 16 percent if January planting intentions are carried out. Flaxseed supplies are relatively small this marketing year, but prices to farmers have fallen sharply along with other domestic oilseed crops.

The above early season plans will be resurveyed in a later report to be released April 15 (March in former years). This report will indicate farmers' planting intentions just as the season gets underway. Last year, soybean farmers trimmed their acreage plans from 57½ million in January to 56.6 million in March, while 54.6 million were actually planted.

SOYBEANS

Record Supplies Resulted in Price Declines; Farm Storage Up Sharply

The 1975/76 soybean supply totals 1,706 million bushels (46.4 million metric tons), some 23 percent more than the previous season's and a new record high.

The 1975 soybean crop totaled 1,521 million bushels, the second largest crop of record. Increased acreage and higher yields resulted in the increased production. The 1975 production was 25 percent more than 1974's but 2 percent less than the 1973 record crop of 1,547 million bushels. The U.S. yield averaged 28.4 bushels per acre, the highest of record, and compares with 23.2 bushels for 1974 and 27.7 bushels for 1973. Farmers planted 54.6 million acres, an increase of 2 percent from the 1974 crop but 4 percent less than the record 1973 crop.

Favorable weather allowed harvest to progress faster than usual. Three-fourths of the U.S. soybean crop had been harvested by November 1 compared with 68 percent by November 1974 and 65 percent on the average. By the end of November 95 percent of the crop was harvested, still slightly ahead of both 1974 and the normal pattern.

Prices received by farmers for soybeans during harvest fell $1 a bushel, from $5.32 in September to $4.28 in December. During these harvesting months prices averaged about $4.75 per bushel compared with $7.50 in September-December 1974. While soybean use during these months ran a fifth above 1974, supplies outpaced demand. There is no government price support program for soybeans this marketing year.

Soybean stocks in all positions totaled a record 1,246 million bushels on January 1, 1976, up 26 percent from a year ago. Farm stocks, at 581 million, were up 20 percent. Off-farm stocks, at 665 million, were 32 percent above a year earlier.

Total soybean disappearance for the 1975/76 marketing year is estimated at 1.4 billion bushels, up about 15 percent but still less than the 1975 crop. As a result, carryover stocks next September 1 will rise, possibly to around 330 million bushels.

TABLE 3.--SOYBEANS: ACREAGE, PRODUCTION AND PRICE, AND VALUE BY STATES AND AREAS, CROP YEARS 1973-75

STATE AND AREA	ACREAGE HARVESTED			YIELD PER ACRE HARVESTED			PRODUCTION			PRICE PER BUSHEL RECEIVED BY FARMERS			VALUE OF PRODUCTION		
	1973	1974	1975 1/	1973	1974	1975 1/	1973	1974	1975 1/	1973	1974	1975 1/	1973	1974	1975 1/
	--1,000 ACRES--			--BUSHELS--			--MILLION BUSHELS--			--DOLLARS--			--MILLION DOLLARS--		
NORTH CAROLINA	1,450	1,420	1,420	24.0	21.5	23.0	34.8	30.5	32.7	5.58	6.81	4.65	194.2	207.9	151.9
SOUTH CAROLINA	1,250	1,250	1,380	19.0	18.5	22.0	23.8	23.1	30.4	5.75	6.69	4.55	136.6	154.7	138.1
GEORGIA	950	1,610	1,260	21.0	25.5	25.0	20.0	25.8	31.5	5.58	6.84	4.55	111.3	176.2	143.3
ALABAMA	970	1,020	1,310	21.0	23.0	24.0	20.4	23.5	31.4	5.64	7.01	4.65	114.9	164.5	146.2
TOTAL SOUTHEAST	4,620	4,700	5,370	21.4	21.9	23.5	99.0	102.9	126.0	5.64	6.84	4.60	557.0	703.3	579.5
KENTUCKY	1,140	1,170	1,200	25.5	24.0	26.5	29.1	28.1	31.8	5.64	6.84	4.70	164.0	192.1	149.5
TENNESSEE	1,570	1,520	1,850	23.5	21.0	24.5	36.9	31.9	45.3	5.48	7.07	4.55	202.2	225.7	206.2
MISSISSIPPI	2,750	2,500	3,120	22.0	18.5	22.0	60.5	46.2	68.6	5.69	6.94	4.65	344.2	321.0	319.0
ARKANSAS	4,650	4,300	4,700	25.0	19.0	24.0	116.2	81.7	112.8	5.66	6.96	4.55	658.0	568.6	513.1
LOUISIANA	1,580	1,720	1,820	22.0	25.0	24.0	34.8	44.0	43.7	5.67	7.12	4.70	197.1	313.3	205.3
TOTAL SOUTH CENTRAL	11,690	11,210	12,690	23.7	20.6	23.8	277.5	231.9	302.2	5.63	6.99	4.63	1,565.5	1,620.7	1,393.4
OHIO	3,590	3,190	3,100	25.0	25.0	32.5	89.8	79.8	100.8	5.71	6.73	4.65	512.5	536.7	468.5
INDIANA	4,290	3,880	3,630	31.5	25.0	33.0	135.1	97.2	119.8	5.72	7.05	4.70	773.0	685.6	563.1
ILLINOIS	8,930	8,440	8,220	31.5	24.0	35.5	281.3	202.6	291.8	5.84	6.49	4.70	1,642.8	1,314.6	1,371.8
IOWA	7,750	7,110	6,970	34.0	28.0	34.0	263.5	199.1	237.0	5.65	6.36	4.60	1,488.8	1,266.1	1,090.2
MISSOURI	4,700	4,350	4,470	27.0	21.5	25.5	126.9	93.5	114.0	5.68	6.54	4.60	720.8	611.7	524.4
MINNESOTA	4,390	4,000	3,570	29.0	21.0	26.0	127.3	84.0	92.8	5.61	6.26	4.70	714.2	525.8	436.3
TOTAL EASTERN CORN BELT	33,650	30,960	29,960	30.4	24.4	31.9	1,023.9	756.2	956.2	5.70	6.57	4.66	5,852.1	4,940.5	4,453.7
NORTH DAKOTA	218	179	149	23.5	16.0	19.5	5.1	2.9	2.9	5.50	6.00	4.50	28.2	17.2	13.1
SOUTH DAKOTA	396	368	337	24.0	20.0	25.0	9.5	7.4	8.4	5.45	6.54	4.50	51.8	48.1	37.8
NEBRASKA	1,210	1,190	1,230	30.0	23.5	27.0	36.3	28.0	33.2	5.37	6.22	4.55	194.9	173.9	151.1
KANSAS	1,200	1,030	1,080	22.0	19.5	20.5	26.4	20.1	22.1	5.67	6.34	4.50	149.7	127.3	99.4
TOTAL WESTERN CORN BELT	3,024	2,767	2,796	25.6	21.1	23.8	77.3	58.4	66.6	5.50	6.28	4.51	424.6	366.5	301.4
ALL OTHER 2/	2,832	2,671	2,790	24.7	24.5	25.2	69.5	65.4	70.4	5.51	6.71	4.46	387.5	438.6	315.5
UNITED STATES	55,796	52,368	53,606	27.7	23.2	28.4	1,547.2	1,214.8	1,521.4	5.68	6.64	4.63	8,786.7	8,069.6	7,043.8

1/ PRELIMINARY.

2/ NEW YORK, NEW JERSEY, PENNSYLVANIA, MICHIGAN, WISCONSIN, DELAWARE, MARYLAND, VIRGINIA, FLORIDA, OKLAHOMA, AND TEXAS.

TABLE 4.--SOYBEANS: U.S. SUPPLY AND DISPOSITION, 1955-75

YEAR BEGINNING SEPT.	SUPPLY							DISPOSITION						
		STOCKS, SEPTEMBER 1						DOMESTIC DISAPPEARANCE						
	PRODUCTION	TRADE	GOVERNMENT 1/			TOTAL STOCKS	TOTAL SUPPLY	CRUSHINGS	USED FOR SEED		FEED	RESIDUAL 3/	TOTAL DOMESTIC USE	EXPORTS	TOTAL DISPOSITION
			1/ TURNED UNDER BY CCC	LOAN RESEAL	TOTAL				PER ACRE	TOTAL PLANTED 2/					
	MILLION BUSHEL								BUSHEL		MILLION BUSHEL				
1955	373.7	13.2	8.2	1.2	---	9.4	396.3	261.9	25.8	1.19	1.6	-2.6	306.7	66.6	375.3
1956	449.3	20.9	4/	.1	---	.1	470.3	313.6	26.4	1.20	1.7	13.3	355.0	83.7	438.7
1957	483.4	24.2	6.2	1.2	---	7.4	515.0	350.9	29.5	1.17	1.5	1.9	383.8	88.4	472.2
1958	560.2	20.2	12.7	3.9	---	16.6	623.0	398.8	27.4	1.17	1.9	2.1	430.2	105.0	535.2
1959	532.9	29.0	44.6	5/	14.2	58.8	620.7	394.0	29.3	1.20	1.5	4.2	429.0	139.9	568.9
1960	555.1	36.9	14.7	.2	---	14.9	606.9	406.1	32.5	1.17	1.3	5.2	445.1	134.7	579.8
1961	676.6	27.1	---	---	---	---	703.7	481.4	33.3	1.17	1.3	12.0	478.0	149.4	627.4
1962	669.2	19.8	47.0	.4	11.1	58.5	748.5	472.6	34.6	1.17	1.1	12.5	521.0	180.5	701.5
1963	699.2	41.6	2.5	2.2	.1	4.8	746.0	436.8	30.0	1.14	.9	17.0	490.7	187.2	677.9
1964	700.9	41.3	11.8	11.2	3.0	26.0	768.2	479.0	40.3	1.14	.9	6.1	526.3	212.2	738.5
1965	845.8	29.7	---	---	---	---	875.5	557.5	42.8	1.15	.9	7.9	589.1	250.6	839.7
1966	928.5	55.6	---	---	---	55.6	984.1	559.4	47.1	1.15	.9	5.0	612.4	261.6	874.0
1967	576.4	56.2	7.4	21.5	5.0	33.9	1066.5	578.4	48.6	1.15	.9	7.7	633.6	286.8	920.4
1968	1107.0	26.4	29.4	67.0	41.5	137.9	1271.3	605.9	47.3	1.11	.9	5.6	659.7	286.8	946.5
1969	1133.1	10.0	171.4	0/81.9	103.5	356.8	1459.9	737.3	48.5	1.13	.9	10.8	797.5	432.6	1230.1
1970	1127.1	32.9	150.2	5.1	41.6	196.9	1356.9	760.1	48.1	1.11	1.1	15.0	824.3	433.8	1258.1
1971	1176.0	87.4	2.5	3.0	5.9	11.4	1274.8	720.5	51.0	1.09	1.1	13.4	780.0	416.8	1200.8
1972	1270.6	70.5	4/	1.5	---	1.5	1342.6	721.8	50.8	1.07	1.1	19.9	803.6	479.4	1283.0
1973	1547.2	59.4	---	.2	---	.2	1606.8	821.3	56.1	1.05	1.2	18.2	896.8	539.1	1435.9
1974 7/	1214.8	170.1	---	.8	---	.8	1385.7	701.3	59.3	1.09	1.0	18.4	780.0	420.7	1200.7
1975 8/	1521.4	184.6	---	.4	---	.4	1706.4	775-825 (			76		)	851-901	475-525	1326-1426
1976 9/							380-280								

1/ ESTIMATES. 2/ IN THE FOLLOWING YEAR. 3/ MOSTLY STATISTICAL DISCREPANCIES. 4/ LESS THAN 50,000 BUSHELS.
5/ SMALL QUANTITIES INCLUDED WITH RESEAL. 6/ SOME OF THESE SOYBEANS PROBABLY HAD BEEN REDEEMED PRIOR TO SEPTEMBER 1.
7/ PRELIMINARY. 8/ PRODUCTION INDICATED JANUARY 1. DISPOSITION IS FORECAST. 9/ FORECAST.

DRAFT
PPollak:dbd
March 4, 1976

PALM OIL: ISSUES AND QUESTIONS

Background

1. During 1975 the United States imported 436,000 tons of palm oil. This represents an increase of 133 percent over 1974 palm oil imports of 187,000 tons.

2. This dramatic increase in palm oil imports occurred at a time when the United States harvested a bumper crop of soybeans. Although soybeans are grown primarily for the high-protein meal contained in them, which is used as a livestock feed, soybean oil is a valuable by-product (Table 1). A decline in the price of soybean oil affects adversely the oilseed crushing industry and the soybean producers. In January 1976 the US Department of Agriculture released a report on this issue under the title: Palm Oil, Historical Perspective and Future Prospects. The main findings of this report surfaced a few days later in the US press. The following are two examples:

(a) Dan Morgan in the Washington Post (February 1, 1976) says that "A sharp increase in the volume of palm oil imported into the US has caused the US Agriculture Department to recommend that the Government reverse a long-standing policy of helping poor countries plant palm trees and build processing plants...The Department warned that duty-free imports of the relatively cheap palm oil will severely hurt US soybean cotton farmers." The Washington Post adds that "A Treasury Department official said the Government would look with 'skepticism' on any new requests (of assistance) pending

the completion of an Agriculture Department study of the impact of the global palm oil boom".

(b) The Journal of Commerce (February 2, 1976) carried a Commodity News Service story saying that "State and Treasury Department sources confirm that their commodity experts are looking at the question of palm oil imports, including the possibility of ending or limiting US aid programs that help foreign palm oil producers". According to this report, the experts "who make interagency food policy are examining US bilateral aid programs that help foreign palm oil producers and the position the US should take on interantional agency programs that do the same thing".

Issues and Questions

3. Which are the major palm oil producing countries?

Almost half of the world's production of palm oil comes from Malaysia and Indonesia. Nigeria, Zaire and the Ivory Coast together produce about a third of the world's production (Table 2).

4. Why do Malaysia and Indonesia dominate the supply of palm oil?

First, palm oil acreage expanded mainly in response to a decline in natural rubber prices during the early sixties. Then, in Malaysia and Indonesia, most of the palm oil is produced on estates. Yields on estates generally exceed those of wild groves in many West African countries. The bulk of palm oil is therefore likely to come in the future from countries where estates (this includes small holder estates) dominate the palm oil production.

5. In what way does palm oil affect the US soybean producer?

Soybeans contain roughly 17 percent oil and 80 percent high-protein meal. Both commodities are simultaneously recovered in the extraction process. Soybean meal is a major component in livestock feeds; soybean oil is used mainly in the manufacture of cooking oils, margerine, shortening, and various non-food products. Technically, most fats and oils are interchangeable. However, cost of refining and specific end-use requirements limit the range within which individual fats and oils can be substituted. Technological improvements in the refining of vegetable oils brought palm oil into close competition with soybean oil, rapeseed oil, and lard and other lower-priced fats and oils. (The correlation coefficients computed from prices for major fats and oils shown in Table 3 illustrate this point.)

6. Considering the high degree of interchangeability among commodities in this group, it could be argued that a change in the supply of any individual fat or oil will affect the prices of its competitors. As the supply of an oil increases, its price declines and manufacturers of margerine, shortening, soaps, etc. will substitute the cheaper oil for more expensive ones--within the limits of their product specifications. This is the underlying cause for the recent surge in US palm oil imports. The immediate impact of these imports was a decline in prices for soybean oil and--to a lesser extent--for soybeans.

7. Wasn't the drop in soybean prices accentuated by the charp increase in soybean supplies?

Recent estimates put the US 1975 soybean crop at 41.3 million tons, the second largest after the 1973 second crop of 42.1 million tons. This crop reflects favorable weather conditions which increased average yields by 17 percent. US farmers had expanded their soybean acreage only at 2.4 percent. (Note the importance of weather on soybean output.) The following table shows that most of the other major soybean producing countries recorded also significant increases in soybean production.

World Soybean Production ('000 tonnes)

	1970	1971	1972	1973	1974	1975	% Change 1974-1975
TOTAL	41,809	43,554	47,451	57,341	51,976	61,273	+17.9
of which:							
USA	30,675	32,006	34,581	42,108	33,569	40,110	+19.5
Brazil	1,509	2,077	3,666	5,000	7,500	9,600	+28.0
China	6,900	6,700	6,300	6,700	7,000	7,200	+ 2.9
Indonesia	498	475	518	507	564	575	+ 2.0
Mexico	240	250	375	510	420	540	+28.6
Argentina	27	59	78	272	496	485	+ 2.2
USSR	603	585	258	423	360	400	+11.1

Source: AGRA - Europe

8. What are the long-term market prospects for palm oil?

Supply. The following table provides an overview of the supply of major fats and oils. According to these projections, soybean oil will continue to dominate the fats and oils market. Palm oil will increase its share from 6.6 percent in 1975 to 8.7 percent in 1980. Preliminary projections by the Bank's staff put the market share at 10.1 percent in 1985.

Table : WORLD PRODUCTION OF SELECTED OILSEEDS, FATS AND OILS (FAT OR OIL EQUIVALENT), ACTUAL 1960, AVERAGE 1967-69, 1975 PROJECTED 1980 AND 1985

(In 1000 Metric Tons)

Fat/Oil	1960		1967-69		1975		1980		1985	
	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share
Soybean Oil	3,295	12.3	5,358	15.5	8,550	19.2	11,900	22.4	13,500	23.2
Sunflowerseed Oil	1,665	6.2	3,652	10.5	4,070	9.2	5,200	9.8	5,400	9.3
Cottonseed Oil	2,165	8.1	2,310	6.7	3,005	6.8	3,400	6.4	3,700	6.4
Groundnut Oil	2,555	9.6	3,248	9.4	3,245	7.3	3,600	6.8	3,800	6.5
Rapeseed Oil	1,105	4.1	1,655	4.8	2,495	5.6	2,800	5.3	3,000	5.2
Olive Oil	1,180	4.4	1,307	3.8	1,500	3.4	1,600	3.0	1,700	2.9
Palm Oil	1,250	4.7	1,382	4.0	2,925	6.6	4,600	8.7	5,900	10.1
Coconut Oil	1,955	7.3	2,072	5.9	2,515	5.7	3,000	5.6	3,200	5.5
Palm Kernel Oil	440	1.7	383	1.1	695	1.6	900	1.7	1,000	1.7
Fish Oil	462	1.7	1,058	3.0	1,250	2.8	1,300	2.4	1,400	2.4
Butter	3,855	14.4	4,017	11.6	5,135	11.5	5,300	10.0	5,500	9.4
Tallow	3,050	11.4	4,228	12.2	5,085	11.4	5,500	10.2	5,900	10.1
Lard	3,733	14.1	3,988	11.5	3,950	8.9	4,100	7.7	4,300	7.3
TOTAL	26,710	100.0	34,658	100.0	44,420	100.0	53,200	100.0	58,300	100.0

Sources: USDA: 1960-69
IBRD: 1975-85

EPDCE
March 5, 1976

The following table provides an overview of the international trade in fats and oils. It shows that palm oil exports will more than double during the next 10 years (1976 to 1985).

Table : WORLD EXPORTS OF SELECTED OILSEEDS, FATS AND OILS (FAT OR OIL EQUIVALENT), ACTUAL 1960, AVERAGE 1967-69, 1975 PROJECTED 1980 AND 1985

(In 1000 Metric Tons)

Fat/Oil	1960		1967-69		1975		1980		1985	
	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share	1000 MT	% Share
Soybean Oil	1,400	19.8	1,991	19.8	3,565	27.1	4,900	28.4	5,700	29.3
Sunflowerseed Oil	245	3.3	1,138	11.3	765	5.8	1,250	7.2	1,300	6.7
Cottonseed Oil	294	4.1	226	2.3	425	3.2	460	2.6	510	2.6
Groundnut Oil	826	11.4	1,037	10.3	745	5.7	940	5.5	950	4.9
Rapeseed Oil	92	1.3	439	4.4	745	5.7	920	5.4	1,020	5.2
Olive Oil	69	1.0	82	0.8	63	0.5	100	0.6	110	0.6
Palm Oil	587	8.1	607	6.0	1,800	13.7	2,780	16.2	3,660	18.8
Coconut Oil	1,152	15.9	1,182	11.8	1,425	10.8	1,650	9.6	1,750	9.0
Palm Kernel Oil	407	5.6	299	3.0	396	3.0	420	2.4	435	2.2
Fish Oil	222	3.1	672	6.7	600	4.6	740	4.3	790	4.0
Butter	426	5.9	514	5.1	717	5.5	790	4.6	830	4.3
Tallow	1,076	14.9	1,447	14.4	1,400	10.7	1,820	10.6	1,950	10.0
Lard	407	5.6	409	4.1	490	3.7	440	2.6	460	2.4
TOTAL	7,243	100.0	10,043	100.0	13,136	100.0	17,210	100.0	19,465	100.0

Sources: USDA: 1960-69
IBRD: 1975-85

EPDCE
March 5, 1976

Demand. Per capita consumption of fats and oils depends largely on incomes. In many developing countries consumption is less than 5 kilograms. In most developed countries it ranges from 25-30 kilograms. Statistical analysis of the fats and oils consumption pattern shows that demand increases rapidly at low income levels. Thus, considering the population in developing countries, even a small increase in their per capita incomes would create a large potential market for fats and oils. Yet, whether those countries will be able, in the future, to translate this potential demand for fats and oils into an effective demand remains uncertain. Considering that fats and oils consumption in many developed countries will expand only by a small percentage in the future, a large portion of the world's fats and oils supplies will have to be marketed in developing countries. Otherwise, prices for all fats and oils would drop

sharply. Considering, in addition, the low production costs of palm oil, such a drop in prices would affect primarily returns to the production of higher-priced oils. The large increase in palm oil supplies during the next five years (1976-80) will place Malaysia just behind the United States as the world's second major exporter of fats and oils.

Prices. Bank's staff projects a decline in the general price trend (in real terms) for all fats and oils during the first part of the next decade (1975-80). The major assumptions underlying this projection are:

(a) An oversupply of fats and oils caused by: (i) the rapid acreage expansion of oil bearing tree crops in recent years, and (ii) the growing demand for oilseed meals 1/

(b) A declining market potential for fats and oils in developed countries, where consumption approaches the saturation level. An increase in the demand for fats and oils in these countries is likely to come only from the development of new products or end-uses.

The price trend for fats and oils during the second half of the next decade (1980-85) will depend largely on the capability of developing countries to absorb the projected increase in fats and oils. For this period, the Bank's staff projects a slight rise in the general trend of price for fats

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1/ Most oilseeds contain oil and meal in fixed proportions. The crushing process separates these two products. Because they are joint products, the demand for either product increases simultaneously the supply of the other one.

and oils. This projection rests on the assumption that producers will reduce plantings in response to declining prices during the first half of the decade, and that developing countries will absorb an increasing share of the total output of fats and oils.

9. What is the impact of Bank lending for palm oil on the fats and oils market?

During the past decade, Bank loans for oil palm projects totalled about US $240 million. The combined output of palm oil from these projects is projected at 430,000 metric tons for 1980 and 610,000 metric tons for 1985. The Bank's staff projects world production of palm oil to increase from 2.7 million metric tons in 1974 to 4.6 million metric tons by 1980 and 5.9 million metric tons by 1985. Thus, the share of palm oil produced by Bank-supported projects in total world production of palm oil would be 9.4 percent in 1980 and 10.1 percent in 1985.

Considering that the share of palm oil in the total production of major fats and oils 1/ is projected to increase from 6.6 percent in 1975 to 8.7 percent in 1980 and to 10.1 percent in 1985, the increase in total world supplies of fats and oils that is due to Bank-supported projects would amount to only 0.8 percent of the world total in 1980; in 1985, this increase would amount to slightly more than 1 percent of world total supply of fats and oils. Only a small portion of the palm oil is consumed in producing countries. The Bank's lending for palm oil has therefore a somewhat stronger impact on the international trade in fats and oils. Considering that about 75 percent of palm oil from Bank-supported projects move into export markets, this would increase total exports of major fats and oils by 1.9 percent in 1980 and 2.4 percent in 1985.

1/ These include soybean oil, sunflower oil, cottonseed oil, groundnut oil, rapeseed oil, olive oil, palm oil, coconut oil, palm kernel oil, butter, tallow and lard.

10. Why does the World Bank finance oil palm projects in developing countries?

The Bank finances projects that are economically sound and which improve the economies of developing countries. For many countries in the tropical region, oil palm is the most profitable agricultural crop. The expected economic rate of return on the Bank Group projects has ranged from 7 to 17 percent in the Western African countries and from 16 to 20 percent in Malaysia and Indonesia. These economic rates of return reflect not only the Bank's market outlook for palm oil but also its low production costs compared with other fats and oils. (Higher yields from new palm varieties would reduce production costs even further and encourage further investments in palm oil.)

11. Isn't most of the palm oil from Bank financed projects for domestic consumption?

Some rough calculations show that about 75 percent of the palm oil from Bank financed projects would flow into export markets.

ANNEX

Table 1 : SOYBEANS: PRICE AND VALUE OF ITS PRODUCTS, 1955-74

Year	Oil			Meal			Total Value	Crop Price	Difference	Difference as % of Total Value
	Price	Value/1	% Total Value	Price	Value/2	% Total Value				
	US Dollars/MT			US Dollars/MT			US Dollars/MT			
1955	295	51.63	38.6	102	82.11	61.4	133.74	111	22.74	17.0
56	344	60.20	43.3	98	78.89	56.7	139.09	112	27.09	19.5
57	320	56.00	43.6	90	72.45	56.4	128.45	106	22.45	17.5
58	261	45.68	38.1	92	74.06	61.9	119.74	94	25.74	21.5
59	233	40.78	34.8	95	76.48	65.2	117.26	96	21.26	18.1
1960	225	39.38	35.0	91	73.26	65.0	112.64	92	20.64	18.3
61	283	49.53	38.1	100	80.50	61.9	130.03	109	21.03	16.2
62	218	38.15	30.9	106	85.33	69.1	123.48	101	22.48	18.2
63	215	37.63	29.3	113	90.97	70.7	128.60	110	18.60	14.5
64	228	39.90	30.7	112	90.16	69.3	130.06	111	19.06	14.7
1965	265	46.38	33.4	115	92.58	66.6	138.96	116	22.96	16.5
66	259	45.33	31.2	124	99.82	68.8	145.15	127	18.15	12.5
67	216	37.80	28.3	119	95.80	71.7	133.60	114	19.60	14.7
68	178	31.15	24.4	120	96.60	75.6	127.75	110	17.75	13.9
69	198	34.65	27.1	116	93.38	72.9	128.03	107	21.03	16.4
1970	289	50.58	33.5	125	100.63	66.5	151.21	121	30.21	20.0
71	304	53.20	34.8	124	99.82	65.2	153.02	128	25.02	16.4
72	240	42.00	27.6	137	110.29	72.4	152.29	146	6.29	4.1
73	430	75.20	22.6	320	257.60	77.4	332.80	235	97.80	29.4
74	795	139.13	45.7	205	165.03	54.3	304.16	277	27.16	8.9
1975										

/1 Based on an oil content of 17.5 percent.
/2 Based on a meal content of 80.5 percent.

Source: IBRD

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Table 2 Palm Oil Production in Major Producing Countries, Five-Year Averages and Percentage Shares 1955-74 1/

Country	1955-59		1960-64		1965-69		1970-74	
	1000 MT	Percent	1000 MT	Percent	1000 MT	Percent	1000 MT	Percent
Western Africa	536.06	46.69	763.64	59.93	750.98	53.88	995.23	43.02
Nigeria	433.28	37.74	497.98	39.09	431.60	30.96	533.40	23.06
Ghana	-		32.20	2.53	49.20	3.53	61.00	2.64
Liberia	39.94	3.48	40.48	3.18	41.20	2.96	7.00	0.30
Sierra Leone	-		36.20	2.84	41.40	2.97	58.00	2.51
Dahomey	13.80	1.20	38.80	3.05	32.92	2.36	42.60	1.84
Ivory Coast	7.06	0.61	22.86	1.79	30.50	2.19	91.48	3.95
Togo	1.38	0.12	0.66	0.05	2.80	0.20	4.70	0.20
Cameroon	18.50	1.61	38.64	3.03	48.36	3.47	57.60	2.49
Cent.African Rep.	0.14	0.01	0.88	0.07	0.64	0.05	0.50	0.02
Congo, PR	2.90	0.25	6.62	0.52	6.18	0.44	6.14	0.27
Eq. Guinea	2.28	0.20	3.12	0.24	3.96	0.28	4.16	0.18
Gabon	-		-		1.56	0.11	2.48	0.11
Gambia	0.42	0.04	1.42	0.11	2.08	0.15	2.02	0.09
Guinea	-		8.80	0.69	13.80	0.99	40.56	1.75
Guinea-Bissau	-		6.40	0.50	8.00	0.57	8.00	0.35
São Tome/Principe	2.26	0.20	1.78	0.14	1.18	0.08	0.99	0.04
Angola	14.10	1.23	26.80	2.10	35.60	2.55	74.60	3.22
Eastern Africa	225.80	19.67	225.04	17.67	172.58	12.38	182.82	7.90
Tanzania	0.10	0.01	0.32	0.03	0.78	0.06	1.64	0.07
Burundi	1.42	0.12	1.00	0.08	1.00	0.07	1.00	0.04
Zaire	224.28	19.54	223.72	17.56	170.80	12.25	180.18	7.79
Latin America - Caribbean	17.56	1.53	27.67	2.18	53.48	3.84	92.16	3.98
Brazil	-		1.28	0.10	10.22	0.73	6.78	0.29
Colombia	-		0.01	0.00	9.72	0.70	38.62	1.67
Costa Rica	3.36	0.29	6.00	0.47	10.00	0.72	14.44	0.62
Ecuador	-		0.46	0.04	2.52	0.18	6.00	0.26
Honduras	-		1.12	0.09	1.40	0.10	7.28	0.32
Mexico	11.92	1.04	13.36	1.05	13.00	0.93	11.32	0.49
Paraguay	0.78	0.07	3.94	0.31	5.12	0.37	7.72	0.33
Venezuela	1.50	0.13	1.50	0.12	1.50	0.11		
East Asia - Pacific	218.64	19.05	256.00	20.10	416.86	29.90	1,043.31	45.10
China Rep.	-		-		-		40.00	1.73
Indonesia	155.22	13.52	147.52	11.58	176.42	12.65	273.72	11.84
Malaysia	63.42	5.53	108.48	8.52	240.44	17.25	728.10	31.47
Philippines	-		-		-		1.49	0.06
Others	149.94	13.06	1.47	0.12				
World Total	1,148.00	100.00	1,273.82	100.00	1,393.90	100.00	2,313.52	100.00

1/ Production data for 1974 and 1975: IBRD estimate.
Source: FAO

Table 3 : CORRELATION METRIX OF PRICES FOR SELECTED FATS AND OILS

Fat/oil	Sun-flower	Ground-nut	Cotton seed	Rape seed	Olive	Palm	Coco-nut	Palm kernel	Fish	Butter	Tallow	Lard
Soybean	.99	.97	.96	.98	.92	.97	.79	.84	.95	.69	.96	.94
Sunflower		.98	.96	.98	.92	.97	.80	.85	.95	.71	.94	.93
Groundnut			.97	.94	.94	.95	.81	.85	.93	.74	.93	.89
Cotton seed				.92	.93	.94	.84	.85	.91	.66	.92	.87
Rape seed					.88	.95	.76	.81	.93	.63	.92	.97
Olive						.86	.66	.71	.83	.81	.83	.85
Palm							.88	.92	.97	.62	.95	.91
Coconut								.98	.86	.32	.82	.69
Palm kernel									.90	.39	.85	.74
Fish										.60	.97	.91
Butter											.62	.63
Tallow												.91

Source: Correlation coeffecients were computed from prices shown in Table

THE PROBLEM OF PALM OIL

Impact on American Commerce and Agriculture

A Statement by the National Soybean Processors Association

February 1976, Washington, D.C.

THE PROBLEM OF PALM OIL

Impact on American Commerce and Agriculture

Every American President since John F. Kennedy has emphasized the economic interdependence of the United States and other nations. But Americans are still not adequately informed about the impact of many international economic forces on the prices they pay and the quality of goods they purchase. A dramatic example of that impact is now in the making: the prospective effect of imported palm oil on domestic food markets.

Today, the foreign aid and foreign trade policies of the U.S. Government with respect to the production and importation of palm oil portend serious trouble for domestic food prices and domestic commodity markets. Those policies need to be examined, and they need to be changed -- to avert that trouble. In short, palm oil imports jeopardize the stability of our domestic commerce. There are four key facts which confirm this logic:

- An increasing tonnage of relatively cheap palm oil is being imported into the United States, undercutting domestic producers of competing oils, including soybean oil.
- The American taxpayer is indirectly subsidizing the foreign production and importation of palm oil.
- Prospective damage induced by palm oil on the markets for U.S. soybean oil will entail higher prices for soybean meal.
- Increased prices for soybean meal will cause both its reduced usage in animal feeds as well as higher-priced feeds -- which will in turn stimulate higher meat, poultry and dairy prices.

The conclusion is that current Government policy on palm oil will ultimately bring price increases to the American supermarket. The solution is to change that policy -- while there is still time.

Imports

Total imports of palm oil into the United States rose from 440 million pounds in calendar year 1974 to 960.4 million pounds in calendar year 1975, an increase of 118% by volume in one year. In each of the last three months of 1975 -- October, November and December -- palm oil imports increased by over 100 million pounds from 1974 levels. The magnitude of imports is growing; the six-year trend in palm oil imports is illustrated in Figure 1 (next page).

As the source for these soaring imports, palm oil *exports* from the principal producing countries in Southeast Asia have experienced similar growth, as illustrated in Figure 2. Moreover, a substantially larger share of these

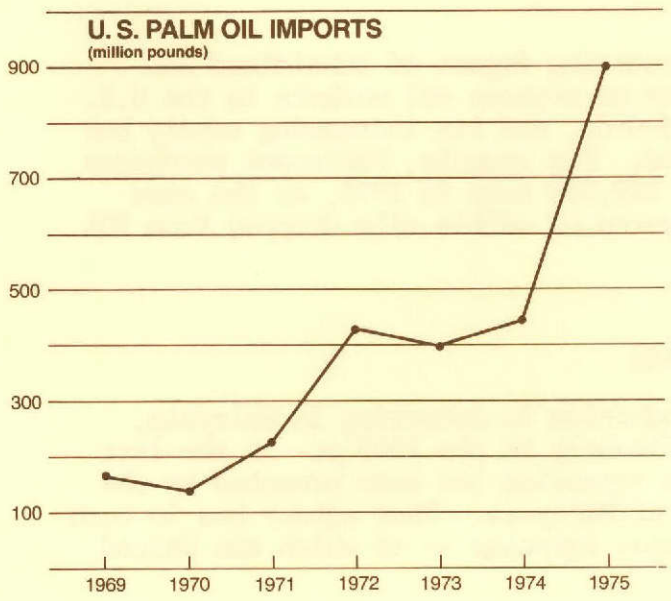

Figure 1

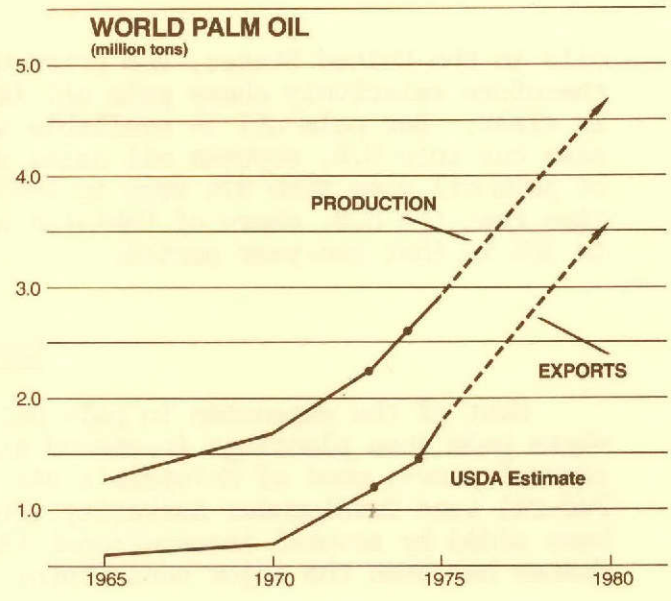

Figure 2

exports are finding their way to the United States. For example, in the first seven months of 1974, slightly over 10% of West Malaysia's palm oil exports went to the U.S. But in the first seven months of 1975, over 28% of the palm oil shipped by that territory arrived at American ports.

The impact of recent palm oil imports on domestic American markets has been serious. According to the U.S. Department of Agriculture (USDA), potential sales of 43 million bushels of soybeans to domestic edible oil users have been lost as a direct result of increased palm oil imports in 1975. Unfortunately, this damage promises to worsen. USDA estimates that total palm oil imports may well reach one billion pounds for the calendar year 1976, representing an additional loss of 30 million bushels of soybean sales by U.S. growers to their customers. Beyond 1976, the prospects seem equally negative. In January 1976, USDA's Foreign Agricultural Service stated: "If palm oil imports into the U.S. market expand as projected, the implication is that oil production from 15 million bushels of soybeans or more than a half-million acres of soybeans will be displaced each year for the next ten years." The reduction in farmers' income that this will occasion will be appreciable; in 1975, an estimated $1.5 billion in farm income was lost as a result of swelling palm oil imports.

The increase in supply of palm oil on the world market is not expected to abate. Even palm trees that are already planted will produce 65% to 75% more oil by 1980 than is produced now (and future expansion of acreage is planned). Figure 2 illustrates the expected growth in world palm oil production, through 1980. From 1975 to 1985, the actual gain in West Malaysia's palm oil production is projected at 140%. Practically all of that gain will be exported to countries including the United States.

Since palm oil is directly competitive with soybean oil and other vegetable

oils in the United States, the price-undercutting impact of subsidized and therefore relatively cheap palm oil imports on soybean oil markets in the U.S. is clear. But palm oil is available world-wide, and its increasing supply has also cut into U.S. soybean oil sales abroad. For example, Pakistani purchases of palm oil rose from 974 tons in 1973 to 129,329 tons in 1975, at the same time that the U.S. share of Pakistan's imports of edible oils dropped from 90% to 30% in that two-year period.

Subsidies

Most of the expansion in palm oil production is occurring in Malaysia, where palm tree plantings increased significantly in the 1960's. In the last several years, most of Malaysia's oil palm expansion has been promoted by the Federal Land Development Authority (FLDA) of Malaysia. That agency has in turn been aided by several international financial agencies -- to which the United States has been the major contributor.

Indonesia is another chief producer of palm oil in Asia. In October 1975, the U.S. Department of State endorsed a loan application by that country to the World Bank, which will provide $11.3 million for subsidy of new palm oil production. Indonesia will use that money to build a new palm oil processing facility in Northern Sumatra. When it begins operation in 1980, the plant will be able to produce over 25,000 metric tons of palm oil a year. All the palm oil will be destined for export.

USDA estimates that the international financial assistance program for palm oil -- underwritten in large part by the U.S. -- was responsible for increasing world exports of that commodity by more than 200,000 tons in 1975. Between 1975 and 1980, international loans are expected to subsidize 45% of all palm oil production.

Data on the cost of growing palms and producing palm oil substantiates that U.S. supported financing has been a major factor. The cost of palm oil output funded by private investment is approximately 3¢ to 5¢ per pound greater than the cost when subsidized by loans. Clearly, the rapid growth of palm oil production has not been a free market phenomenon. The U.S. Government has been directly aiding and abetting overseas competition for U.S. products.

Other Western governments have moved to counteract these artificial advantanges possessed by palm oil, in order to permit their own domestic vegetable oils to have fair opportunities in trade. The United States is the only nation in the world that imposes no duties or other restrictions on importation of palm oil.

An Economist's View

Soybeans are the most important oilseed produced in the United States, and are crushed to obtain both soybean oil (used in processed edible oils) and soybean meal (used in high-protein animal feeds). Economists have noted that in the past, production of edible fats/oils and production of protein feeds

have been in reasonable balance in meeting global consumption requirements. But the potential for imbalance is inherent in the structure of the market: sources of demand for fats/oils, and sources of demand for protein feeds, are completely independent of one another, while both kinds of commodities are necessarily derived in quantity at the same time, from the same industrial process.

An economist might put it this way: the explosion of palm oil supplies threatens to upset the equilibrium between the dual oilseed-based markets of protein-feeds and edible oils. On the basis of current growth rates in palm oil production, USDA estimates that world fats/oils production by 1980 will probably exceed consumption requirements, whereas protein feed production will be less than adequate. The economic data that support this conclusion are unmistakable.

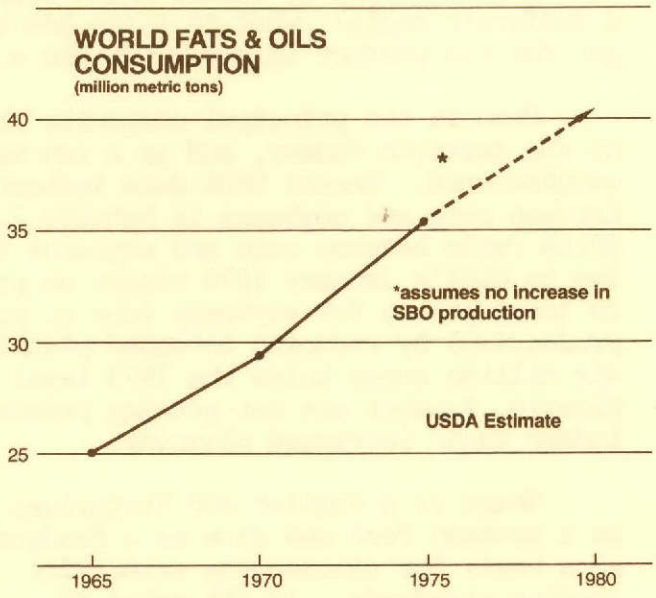

Figure 3

Projected increases in palm oil production, together with production of other oils *except soybean oil*, will be able to satisfy projected demand for fats/oils. That promises stagnating demand for soybean oil, with the logical consequence of subsequently limited production. But without growth in the supply of soybean oil, there can be no growth in the supply of soybean meal. And the result of less soybean meal will be a reduced supply of high-protein animal feeds, of which soybean meal constitues two-thirds in the U.S. The further effect is less efficient livestock production.

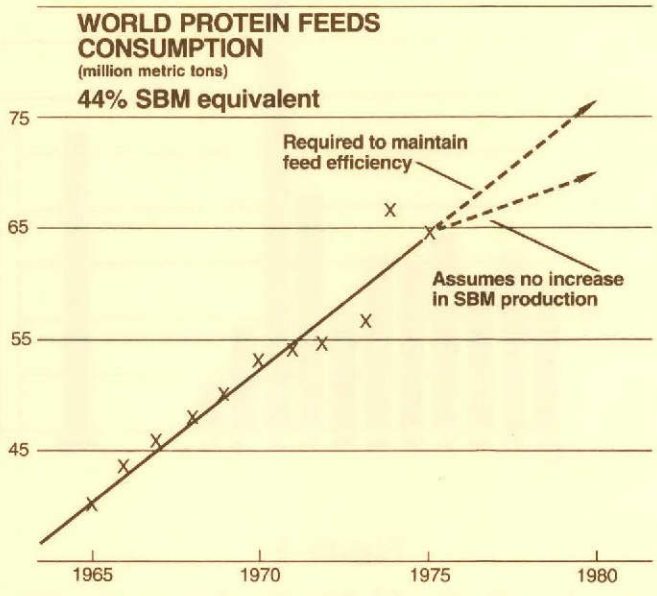

Figure 4

To be even more specific: animal feeding efficiency, and deviation from optimum protein levels in feeding rations, are generally considered to be related in a "linear" fashion. In other words, 10% less than optimum protein levels in a feeding ration for animals results in 10% less nutritionally efficient feeding. With no increase in soybean meal supplies by 1980 -- an effect of stagnant soybean oil production caused by palm oil exports -- world production of protein feeds is now estimated to become 10% to 12% less in 1980 than it

should be to maintain current feeding standards (Figure 4). That is how constricted soybean meal supplies can lead to poorer quality meat as well as higher prices for animal feeds.

A Businessman's View

A businessman or farmer might look at the problem posed by palm oil from a different angle: what it costs him to produce, and the price he needs to get for his product in order to make a profit.

Corn is the principal commodity competing with soybeans for acreage planted by the American farmer, and as a raw material from which animal feeds are manufactured. Recent USDA data indicates that the ratio of production costs between corn and soybeans is between 2.1/1 and 2.2/1. But currently the sales price ratio between corn and soybeans (per bushel) is only about 1.8/1. According to USDA's January 1976 report on prospective plantings, farmers are reacting to lower prices for soybeans (due to palm oil imports from subsidized foreign production) by reducing intended plantings to 50.9 million acres in the U.S. -- six million acres below the 1973 level (before palm oil imports became a problem). Clearly, farmers are not getting prices for soybeans sufficiently profitable to induce their increased planting.

There is a similar and historical price relationship between soybean meal as a protein feed and corn as a feedgrain (Figure 5). That relationship is used as a basis for determining scientific feeding standards. If the price of soybean meal relative to corn goes too high, soybean meal will be reduced in feeding formulae, with the result of nutritional inefficiency. Note that condition in 1972, in Figure 5. A similar condition can be projected for 1980, extrapolating from current data on prospective price increases for soybean meal, caused by lack of growth in supply -- which in turn will be caused by the effect of palm oil on soybean oil markets.

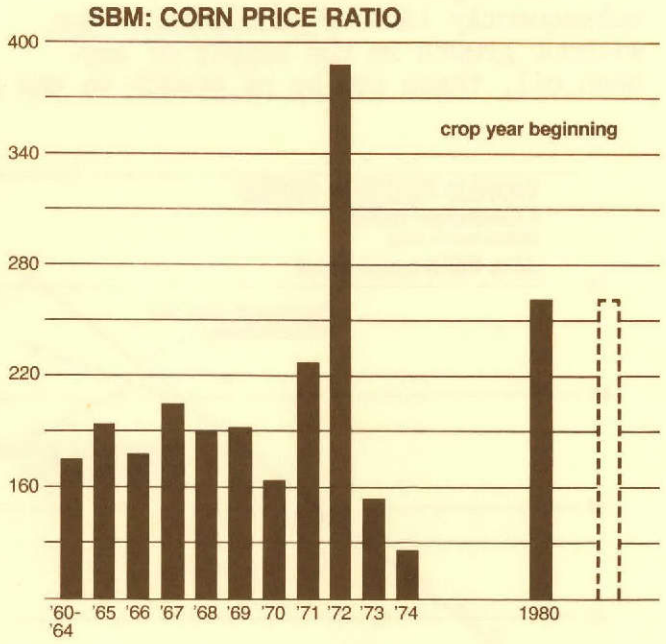

Figure 5

Palm oil's competition with soybean oil will also affect the production of soybeans in the future more seriously than it has thus far. Assuming the cost of producing palm oil will increase approximately 10% a year through 1980 (due mainly to inflation, a good assumption), soybean oil would have to bring 15¢ per pound that year, to be competitive. But if the processor of soybean oil has to charge 16¢ per pound to compete with palm oil (a comparatively low price in terms of return on

investment), the price he will have to charge for soybean meal -- in order to be able to pay for soybeans at a price competitive with corn for planting -- will be high enough to stop expansion of soybean meal usage in animal feeds. Of course that higher price for soybean meal may well be more than the market will bear, and that means the soybean processors will not be paying a corn-competitive price for soybeans. The consequence of that is obvious: discouraging the planting and production of soybeans, when corn would be more profitable to grow.

A Consumer's View

The economist's view and the businessman's view of the problem of palm oil are two sides of the same coin -- a coin the consumer will have to pay in the long run. If the market by 1980 finds it possible to bear the higher prices for soybean meal supplies (necessary to maintain animal feeding standards), the high-protein feed quantities involved would cost American consumers an extra $8 billion. The American shopper will pay that tab in the form of price increases for meat, poultry and dairy products.

Reduced production of soybeans will also hurt the American farmer. Soybeans are one of the nation's top cash crops; the option to grow soybeans on a profitable basis gives the American farmer greater stability of income and greater opportunity to improve his farming efficiency. Palm oil imports are discouraging soybean production; the soybean grower is suffering along with the processor.

What Must Be Done

If palm oil is allowed continued free and unlimited access to U.S. markets, and if palm oil production continues to be subsidized by special loans supported by American tax money, the result will be higher food prices for all Americans. At the very least, the foreign economic policies of our Government should not encourage higher food prices at home. At best, they should discourage unfair competition for American products.

The National Soybean Processors Association has adopted three proposals that it recommends the U.S. Government accept and implement:

(1) The elimination of U.S. support for international financing arrangements that subsidize the production of oilseeds and other oil-bearing materials exported in competition with U.S. oilseed crops.

(2) The adoption as policy of a plan which would lead to the negotiation by the U.S. of a mandatory import quota of 1.152 billion pounds of palm oil, which would become effective in 1978. The basis for the quota is the volume of palm oil imported into the U.S. in 1975 (960 million pounds), plus an increase of 10% per year through 1977 (not compounded).

The rationale for this approach is that it does not interfere with current free trade in palm oil; it does not affect trees already in

production; and it provides ample notice and a period of transition for producers of palm oil.

(3) The adoption as policy of a plan which would lead to the establishment of an import duty on palm oil, in excess of a duty-free base of 572 million pounds, to become effective in 1978. The duty-free base as constructed is based on the 1974 level of 440 million pounds of imports of palm oil into the U.S., plus 10% a year for 1975, 1976 and 1977. Imports in 1978 in excess of the 1974 base year, as adjusted through 1977, would be subject to a duty equal or comparable to prevailing world duties of other countries on the importation of palm oil (particularly the E.E.C.).

The governments of other nations facing the palm oil problem have acted to offset that commodity's unfair advantages in world trade. The U.S. Government must do the same.

Additional copies of this document, as well as copies of a new brochure entitled "Palm Oil Imports: Risk for the Economy, Crisis for the Farm," may be ordered from the National Soybean Processors Association (NSPA), 1800 M Street, N.W., Washington, D.C. 20036.

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Position of the National Cotton Council in Regard to U.S. Assistance to Palm Oil Producing Countries and U.S. Imports of Palm Oil

The U.S. vegetable oil industry, including the cottonseed oil industry, is quite important to the over-all well-being of the United States. The industry not only plays a vital role in providing important food products for the American people, the industry's exports also contribute significantly to the U.S. balances of trade and payments. In other words, the industry is an important sector of the U.S. economy. Consequently, if the industry is undermined by imports, the adverse repercussions could have a detrimental effect on the whole U.S. economy.

The Council understands and appreciates that the United States is committed to help the less developed countries improve their economies and provide a better livelihood for their people. The Council concurs in this general policy. However, in helping these less developed countries, the United States should be realistic and should not, at the same time, undermine any important sector of the U.S. economy in order to assist these less fortunate countries.

The low-priced imports of palm oil by the United States generally depress the American vegetable oil industry; in addition, U.S. consumption of the imported palm oil could have detrimental effects on the health of the American people for whom physicians have recommended a diet that is low in saturated fats; furthermore, the imports of palm oil have an adverse effect on the U.S. balances of trade and payments. Under the circumstances, the Council considers that the U.S. Government should adopt the following policy in respect to granting direct and indirect assistance to less developed countries:

(a) Direct U.S. Aid: U.S. assistance should be granted principally to enable a country to become more nearly self-sufficient in the production of a particular agricultural commodity; and U.S. assistance should not be given to help a country become an exporter of an agricultural commodity unless it is anticipated that there will be a long-term world shortage of the commodity and substitutes therefor;

(b) Indirect U.S. Aid: For aid granted by international organizations of which the United States is a member, the United States should endorse the granting of assistance which would help a country become more nearly self-sufficient in the production of an agricultural commodity; but the United States should not endorse the granting of assistance to help a country become an exporter of an agricultural commodity unless it is anticipated that there will be a long-term world shortage of this commodity and substitutes therefor; and,

(c) Assistance to Palm Oil Exporting Countries: With respect to palm oil exporting countries, the Council recommends that the United States directly or indirectly, (through international organizations), help these countries to develop additional markets for their palm oil exports in diet-deficient countries where the palm oil could upgrade the nutritional levels of the people's diets at a relatively low cost.

The Council considers that the suggested policy outlined above would be a meaningful and justifiable posture for the United States to take in respect to granting assistance to the less developed countries.

Furthermore, the Council understands and appreciates that trade must be carried out on a two-way basis and that the United States must import as well as export; and, the Council endorses the concept that through expanded international trade, benefits can accrue to most countries, including the United States. However, the Council believes that this objective can be attained in a meaningful way only if imports into the United States are not allowed to become so great that they will cause excessive interference with U.S. domestic markets which are so important to the U.S. domestic industries; such a development could result in domestic pressures for the United States to adopt a restrictive trade policy in respect to vegetable oil imports. In this regard, the Council has recommended that the U.S. Government take steps to provide reasonable restraints against excessive imports of vegetable oils into the United States by negotiating bilateral or multilateral agreements with the principal vegetable oil exporting countries whereby these countries would voluntarily limit their exports of vegetable oils to the United States. It is

considered that such agreements could preclude developments which would cause severe interference with U.S. produced vegetable oils in the U.S. domestic market. Furthermore, the Council considers that the U.S. Government should strongly urge the governments of palm oil producing countries to place a moratorium on the planting of additional trees for the production of palm oil for export until the effective world demand for vegetable oils justifies the planting of more trees.

NCC/FO
8/3/76

U.S. DEPARTMENT OF AGRICULTURE, FOREIGN AGRICULTURAL SERVICE, WASHINGTON, D. C.

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PALM OIL, HISTORICAL PERSPECTIVE AND FUTURE PROSPECTS

Current Situation

Although palm oil prices in the United States at about 16 cents per pound are currently not competitive with soybean oil prices at internal points, U.S. imports of palm oil in recent months were up sharply and heavy monthly imports will likely continue perhaps into the first quarter of 1976. This reflects the fact that palm oil purchases are made several months in advance of delivery.

The sharp gain in U.S. monthly imports of palm oil began in August 1974. During the 15-month period, August 1974 through October 1975, U.S. palm oil imports averaged 63.4 million pounds monthly--about double the 32.0-million pound monthly average during the January 1972-July 1974 period. Imports in October 1975 were 100 million pounds--the second largest ever. During calendar 1975, U.S. imports are estimated at 400,000 tons or more than double the 1974 volume.

Although palm oil exports are making sharp gains, it is interesting to note that a substantially larger share of palm oil exports are moving to the U.S. market. For example, West Malaysia's monthly exports during the January-July 1975 period show 134,100 metric tons or 28.5 percent of the total moving to the United States, compared with only 40,800 tons or 10.1 percent of the total in the same 7 months of 1974. So although West Malaysia's exports reported during the first 7 months of 1975 at 470,000 tons increased by 17 percent, the share moving to the United States at 134,100 tons more than tripled from the same months in 1974. Official Malaysian statistics do not report exports of refined, semi-refined, or fractionated palm oils. In addition to the reported volume of crude palm oil exports, West Malaysia is also exporting substantially expanded qualities of refined oils which are estimated to approximate 150,000 tons during calendar 1975--more than double the 1974 volume. A substantial proportion of this refined oil is now moving to the United States (25,200 tons or 29 percent of the total during the January-July period).

Since expiration of several 2-year freight contracts at the end of 1974, the Malaysian Palm Oil Producers Association renegotiated a new 2 year freight contracts for shipping more than 300,000 tons of palm oil to the United States and 500,000 tons to Europe during calendar 1975 and 1976. The contract called for tanker shipments which were scheduled to have begun in March 1975.

New Developments in Malaysia

Although the rate of growth in new plantings of oil palm has diminished, substantial future production expansion is anticipated. The bulk of the projected expansion in Malaysian palm oil output will be from trees already planted. This reflects the fact that only about 62 percent of West Malaysia's oil palm plantings are now bearing. Even if no additional trees were planted, Malaysia's palm oil production at current yields during the next decade would be expected to rise by 60 percent or 700,000 tons.

We project that the actual gain in West Malaysia's palm oil production during the decade through 1985 will be nearly 140 percent to 2.8 million tons--1.6 million above this year's volume. This projection is based on the following assumptions:

1. Harvested acreage expands to 1.5 million acres or slightly less than projected planted acreage in 1980 or only 240,000 acres above the present level.

2. Yields continue to trend upward on:

   a. Increased bearing surface of maturing trees.
   b. Use of improved cultural practices and expanded use of fertilizer.

The bulk of the new plantings in recent years reflects the activities of the Federal Land Development Authority (FLDA) and the Rubber Industry Smallholders Development Authority. The FLDA is now the largest palm oil producer in Malaysia and accounts for more than one-fourth of the total acreage and 17 percent of this year's total output in Malaysia.

Because of Malaysia's relatively small population, projected at only 16 million people by 1985, we would anticipate that domestic utilization will absorb less than 5 percent of that country's projected expansion in palm oil output. This allows for projected growth in population, as well as expansion of more than 50 percent in per capita domestic usage. Thus it is projected that virtually all of any continued expansion of palm oil output in Malaysia will move into export.

Beginning in 1972, Malaysia sought to improve her competitive position in the world vegetable oil market by offering both crude and refined

grades of oil. In 1974 Malaysia's national vegetable oil refining industry doubled its capacity to 90,000 tons. In 1975, seven new palm oil refining and fractionating plants were scheduled to begin, thereby boosting capacity to nearly 200,000 tons. Consequently, Malaysia's exports of refined palm oil and fractionated palm oil products such as palm olein and stearin will rise sharply, perhaps approximating 150,000 tons in calendar 1975, or more than double the 1974 volume. There are long range plans for further expansion of refining and fractionation facilities. The Perak State Economic Development Corporation (SEDC) will build a $60 million palm oil refining plant at Parit Buntar, with a capacity of 300 tons per day, producing 90,000 tons of refined oil per year. Reportedly, 40 percent of money will be from foreign investors. Also the FLDA will build another $20 million plant at Johore in cooperation with the Japanese. This facility is scheduled to be completed in 1977.

In addition to palm oil, the oil palm fruit also yields kernels which are crushed to produce palm kernel oil and palm kernel meal. These products, similar to copra products, are also produced in Malaysia largely for export.

As Malaysia's oil palm industry continues to expand, there is keen awareness that the industry is becoming increasingly dependent upon expanding export markets. In order to improve the quality image of Malaysian palm oil, the industry completed arrangements for the implementation of a standard Malaysian palm oil c.i.f. contract and plans are also underway for preparing a standard f.o.b. contract.

Beginning this year Malaysia's palm oil exports through Singapore will drop sharply. This reflects the fact that the new bulking installation near Johore Bahru with storage capacity of 32,500 tons began operations in February. This facility is jointly owned by the FLDA and private companies.

Although the United States and the European Community (EC) are major customers for Malaysia's palm oil exports, Iraq has contracted to buy over 200,000 tons of palm oil during the July 1974-June 1976 period.

Potential Producer/Export Expansion in other countries

The projected palm oil production expansion is not limited to Malaysia, but it is certainly dominated by it. Malaysia's palm oil output in 1985 (including Sabah) is projected at nearly 3.2 million tons--1.9 million above the 1975 estimated volume. Another 0.5 million tons of the additional 0.7-million-ton expansion in world output is expected to come from Indonesia and the Ivory Coast, where 75 percent of the expansion or 375,000 tons will also move into export by 1985.

Although a number of other countries are located within a suitable latitude for palm oil production where oil palm plantings have already been expanded, the projected gains from these countries during the next decade constitute an export growth potential for about 200,000 tons, or less than 10 percent of the aggregate expected gain in output. The anticipated gains largely reflect expanded oil palm acreage.

Consumption of Additional Palm Oil

The heavy concentration of projected output growth in a relatively small number of countries with small populations means that the additional output must be exported. During the 1975-85 period, the producing countries are projected to absorb only 0.5 million tons of the 2.6-million-ton gain in palm oil output.

The EC, which is estimated to take about 0.7 million tons is projected optimistically to consume 1.1 million tons per year by 1985. This gain, if achieved, would account for 15 percent of the expected increase in world exports.

Japanese palm oil consumption might possibly rise to roughly 0.2 million tons, accounting for nearly 0.1 million gain. This is based on the concept that Japan may seek to further diversify her sources of vegetable oil supply, while at the same time taking increased advantage of likely lower prices oils. To the extent that Japan's future palm oil consumption might exceed the projected level, it would likely displace potential soybean oil consumption growth in this market.

The remaining palm oil consuming countries, outside the United States, accounted for only 12 percent of the world consumption growth during the 1965-72 period. However, this group of countries boosted their palm oil consumption by 0.2 million tons or 80 percent during the 1972-74 period. A key part of that rise came in Iraq and India.

In 1976, India's palm oil imports appear likely to decline following this year's bumper harvests of peanuts, cottonseed, rapeseed, sesameseed, and safflowerseed. This will result in additional gains in palm oil availabilities to be absorbed in other countries next year.

Although Iraq's potential for expanding palm oil consumption is limited by its small population, India has great potential but is limited by her preferences and lack of foreign exchange. Beyond 1976, low per capita availabilities of all vegetable oils in India, together with increasing availabilities of palm oil at relatively low prices, should result in a significant long-term expansion. Although India has a serious long-term need for vegetable oils, we doubt that India can be depended upon to

consume a major share of the palm oil expansion by 1985. Other countries such as Iran and Pakistan may offer more potential.

However, there yet remains about 1.4 million tons of projected palm oil expansion that cannot be logically assigned by country based on past trends, growth rates, or market share prorations.

At this point in time, little more can be done than to indicate that palm oil will likely continue to grow as a proportion of output of all oils and fats, perhaps exceeding 9 percent in 1985, compared with 6 percent in 1975 and less than 4 percent in 1965. The projection is based on the assumption that output of all other vegetable, animal, and marine oils and fats continues to grow by the 1965-74 trend volume of 1.0 million tons per year. Actually the inelastic demand for oil, together with projected above trend gains for all oils, would tend to depress oil prices thereby possibly discouraging annual plantings of major oilbearing crops. However, to the extent that the oil from some crops represents only a minor part of its value, production of those crops would be less affected, thereby compounding the oil surplus problem. In addition, certain oils and fats are byproducts, such as animal fats, whose production trends are not price responsive.

More importantly, world palm oil exports by 1985 will likely grow even more disproportionately relative to total exports of oils and fats. If palm oil exports grow as projected, and all other exports grow at the 1965-74 trendline volume of 340,000 tons per year, by 1985 palm oil exports would account for over 20 percent of all fats and oils exports, compared with 13 percent in 1975 and less than 6 percent in 1965.

By 1985, 34 percent of the oils produced are projected to move in export trade, compared with 28 percent in 1965. However, nearly 75 percent of the palm oil produced will need to be exported.

If projections are anywhere near correct, the above situation would indicate that palm oil will need to account for an increasing share of the world export market. Oil palm plantings, once producing, will continue to produce and augment exports during years of super abundant supplies, as well as during years of below trend output. Even extended periods of depressed oil prices will not affect exports as long as the variable production costs (labor, processing, and transportation) are covered. Lack of storage facilities and adequate financing will likely prevent palm oil producers from building their stocks during periods of super abundant supply in order to achieve better price objectives.

Given the situation above, we would expect a sizable portion of any palm oil export expansion to move to the United States because:

1. The United States is already a proven major market for palm oil.
2. The U.S. market has already demonstrated more flexibility and growth potential than any other major consuming country.
3. Import quotas or import duties for palm oil are not imposed in the U.S. market, while other major markets, including the EC and Japan impose duties of 4 to 10 percent on crude and 8 to 14 percent on refined palm oils.
4. Shipping rates from Malaysia to the United States are less than to most European markets.

Assuming no change in the duty structure or transportation cost differential, we have arbitrarily assumed that one-half of the remaining 1.4-million-ton projected expansion will move to the United States during the 1975-85 period. Incidently, the projected growth to 1.1 million tons in U.S. palm oil imports by 1985 represents a volume which is more than double the projected 1965-74 linear trend in U.S. palm oil consumption. In order to achieve this increase, U.S. palm imports would have to register an annual increase of 72,500 tons per year through 1985. Already during the most recent 5-year period, 1970-75, U.S. palm oil imports are increasing by about 67,000 tons per year. In 1975 alone, the estimated increase in U.S. imports will exceed 100,000 tons.

If palm oil imports into the U.S. market expand as projected, the implication is that oil production from 15 million bushels of soybeans or more than a half million acres of soybeans will be displaced each year for the next 10 years. In terms of cottonseed oil, the 725,000-ton expansion in palm oil imports during the next 10 years could mean displacement of virtually all domestic consumption of cottonseed oil.

World Situation and Outlook

World palm oil production in 1976 is forecast at 3.2 million metric tons--315,000 tons above this year's estimated volume and 514,000 tons above the 1965-74 linear trend. Looking beyond 1976, continued sharp gains in output are projected, which largely reflect expanded acreage and higher yields. Much of the increase resulted from international loans.

Factors Related to Increased Production and Trade

1. The United States has and continues to underwrite varying percentages of these loans which are being used to expand foreign palm oil output. The International Financial Assistance program for palm oil is estimated to be boosting world exports in 1975 by more than 200,000 tons or nearly 12 percent. By 1980 the international palm oil loan program, which taxpayer funds have in part underwritten, are projected to add over 700,000 tons or nearly 22 percent.

2. The major share of the expanded output is being moved into export markets in competition with other edible vegetable oil exports, rather than being used to increase domestic consumption in the producing countries.

3. Not only have world palm oil exports expanded sharply thereby displacing U.S. exports abroad, but an increasing share of this volume has been flowing to the U.S. domestic market thereby causing:

--Displaced domestic consumption of edible vegetable oils.
--Displaced domestic crushing of oilseeds.
--Displaced refining of some domestically produced vegetable oils.

4. The United States is one of the major world markets for palm oil where no quantitative restrictions or import tariffs are being applied. Current projections indicate that even if no additional loans for oil palm expansion were underwritten in the future, world production and exports of palm oil would continue to expand sharply during the next decade. The expansion in palm oil production is projected to be in the magnitude of 2.6 million tons of which 2.3 million tons would be exported by 1985. Current trends indicate that, with the U.S. market free of any import restriction, a disproportionate and burdensome share of the projected expansion would be forced into the U.S. market. In 1975, U.S. palm oil imports are expected to approximate 400,000 metric tons--more than double last year's volume.

5. In 1975 the U.S. market is expected to absorb nearly three-fifths of the increase in world palm exports. U.S. imports of palm oil now account for more than one-fifth of world exports. If present trends continue, we can expect the following events to take place by 1985:

--U.S. palm oil imports will continue to absorb an increasing share--more than one-fourth--of world exports.
--U.S. palm oil imports would nearly triple from this year's estimated volume to more than 1.1 million tons.
--U.S. palm oil imports will substantially exceed the combined volume of U.S. soybean and cottonseed oil exports.
--Palm oil will displace about 10 percent of the potential consumption growth of soybean and cottonseed oils in the United States.

6. An obvious possible solution to the problem of increasing palm oil availabilities would be to allow the free market to allocate the increased availabilities. This would permit maximum flexibility in domestic fats and oils product formulations at the lowest possible consumer cost. However, in all likelihood the United States will continue to absorb the major share of the future gains in availabilities. This would result in depressed prices for domestically produced vegetable oils, thereby reducing producer prices for raw

materials and undermining processor crushing margins. To the extent that future soybean oil sales to lesser developed countries would be reduced by increased palm oil exports to these same countries, the excess oil would: (a) Depress oil prices, thereby necessitating higher meal prices which would restrict meal usage and increase livestock and poultry production costs, as well as costs to consumers; (b) Cause increased program administration costs in the event an oil storage reserve program was initiated; (c) Reduce the relative profitability of producing U.S. soybeans, thereby cutting harvested acreage and future supply availabilities of soybean meal for home consumption and export; (d) Discourage exports of soybeans as foreign processors would be hard pressed to find markets for their oil. In addition, the likelihood of low prices for palm oil would be a sharp blow to some traditional palm oil producing countries where productivity has not kept pace with new plantations in Malaysia and Indonesia. Also, developing countries which depend on exports of vegetable oil other than palm oil would face stiffer competition and reduced foreign exchange for exports.

Palm Oil Output Boosted Sharply by International Loans

World palm oil output has grown sharply and this growth is projected to continue for the next decade. International funding of this expansion is projected to contribute substantially to growth in production and exports.

	International loans	Private investments 1/	World total	International loans as percent of total
	1,000 metric tons			Percent
Production				
1970-75	307	887	1,194	26
1975-80	802	989	1,791	45
Exports				
1970-75	210	848	1,058	20
1975-80	527	1,098	1,625	32

1/ Includes an undetermined volume of expansion provided by the Agency for International Development (AID).

Key Points

The data clearly indicate that the impact of International Financial Assistance programs for palm oil have already boosted world production by more than 300,000 tons. This expansion has accounted for more than one-fourth of world palm oil expansion in recent years.

More than two-thirds of the palm oil production added by International Financial Assistance programs is being exported. These expansion assistance programs have expanded world exports by more than 200,000 tons--accounting for about one-fifth of the growth in world palm oil trade in recent years.

The loans were spread over the 1965-75 period. Because oil palm trees require 3 to 4 years before bearing and do not reach their maximum yield potential until 8 or 10 years, the bulk of the impact from the expansion assistance programs will be during the next decade.

During the 1975-80 period, the palm oil expansion assistance programs will account for over 800,000 tons of output or nearly one-half the projected growth in world palm oil output.

Of the palm oil output added during the 1975-80 period, more than two-thirds or about 500,000 tons will be exported.

The export growth projected for palm oil output under assistance programs during the 1975-80 period is expected to account for one-third of the world palm oil export growth.

Beyond 1980, there will be yet a further sizable production and export impact from palm oil expansion assistance made under the 46 loans approved during the 1965-75 period. This reflects the fact that only 20 percent of the loans during the 1965-69 period are for plantings which have reached full production potential. Another 40 percent applied to the 1970-74 period which, for the most part, have only begun to register impact on production and trade. Finally, the remaining 40 percent of the loans will affect plantings in the 1975-79 period. This portion of the expansion will not reach its maximum potential until the late 1980's.

Although two-thirds of the expansion assistance loans were made to African countries, the bulk of the expansion in exports is projected to be from Malaysia and Indonesia. This reflects the fact that African plantations are, in general, less productive per acre as well as the fact that a larger share of the increase in African output will be needed to satisfy indigenous consumption requirements. Thus in a crunch where the law of comparative advantage is being tested, it would be Malaysian and Indonesian producers who would be best able to compete in world markets.

Price Situation

Palm oil prices have historically shown a very high correlation with soybean oil prices, therefore indicating substantial interchangeability. Freight rates from West Malaysia to the United States are reported to be about $28 per ton or $5 per ton under comparable rates to West European ports. Although freight rates have increased somewhat in recent years, it is difficult to explain why the monthly per unit value of U.S. palm oil imports during the 1972-74 period, largely from Malaysia, averaged only $17 per ton over Malaysian f.o.b. prices. Correspondingly, European palm oil prices for the 1972-74 period averaged $115 per ton over the average monthly unit value of U.S. imports and $132 per ton over Malaysian f.o.b. prices.

Recognizing the fact that the United States does not have representative monthly prices for palm oil, it is meaningless to point out that during the second half of 1974, Malaysian monthly f.o.b. prices for palm oil were significantly above the average monthly value of U.S. imports, since all vegetable oil prices were rising during that period. U.S. import values for palm oil no doubt were fixed at some earlier point in time, probably in relation to some spread under the soybean oil price.

allegation

Assuming that Malaysian palm oil is priced in some relation to U.S. soybean oil during some previous period, a correlation analysis can determine what time lag on U.S. soybean oil prices will best predict monthly palm oil prices in Malaysia and the United States. These price series lagged to achieve the best correlations are present in table 22. Having adjusted the various price series lags, it can now be determined what relative price changes have taken place since June 1974 which might have shifted a larger share of palm oil exports to the U.S. market. The relevant price averages and spreads are as follows in U.S. dollars per metric ton:

	Jan. 1972-June 1974	July 1974-June 1975
Soybean oil:		
U.S.	404	758
Europe	417	778
Palm oil:		
U.S.	308	537
Europe	388	555
U.S. soy oil less		
U.S. palm	96	221
European palm	29	223
Palm oil		
U.S. less Europe	-80	-18
Soybean oil		
U.S. less Europe	-13	-20

The price data indicate that during the January 1972-June 1974 period palm oil prices, basis Europe, averaged $80 per ton under those in the United States. The price spread for this period was clearly more than enough to offset the added costs of import duties and transportation to the European market. During the same period, palm oil was priced at $96 per ton under soybean oil in the U.S. market, but only $29 per ton under soybean oil in the European market.

Beginning in July 1974, the sharp reduction in the prespective 1974 U.S. soybean crop caused a sharp rise in all prices of vegetable oils. Reflecting the uncertain soybean oil supply situation, soybean oil prices in the United States and Europe during the July 1974-June 1975 period averaged more than four-fifths above the January 1972-June 1974 period. Palm oil prices in the United States also registered sharp gains subsequent to June 1974, averaging about 75 percent over the January 1972-June 1974 period. However palm oil prices, basis Europe, for the same period rose less steeply. As a result, the palm oil prices in the United States moved up sharply in relation to European prices, thus removing the Malaysian price advantage in the European markets. At the same time the soybean oil/palm oil price spreads in both Europe and the United States widened sharply. The resulting sharp discount for palm oil prices caused increased palm oil usage in both Europe and the United States.

At present the palm oil/soybean oil price spread has narrowed, thus temporarily removing some of the pressure for increased imports into the United States. However, we see this as only a temporary situation because of the large increase in availabilities of palm oil that must be marketed internationally in the months ahead.

Reportedly, some of the palm oil expansion loans now being made are based on projected prices of $300 to $330 U.S. dollars per metric ton f.o.b. Asian ports. Whether or not this price is achieved appears irrelevant since variable production costs are now estimated to be in the magnitude of $190 U.S. dollars per metric ton for certain oil palm plantations in Asia.

In the future, it appears that the current vegetable oil situation can only lead to depressed price levels which would adversely affect the economies of all major producer-exporter countries.

If such projections are correct, some course of action seems to be needed which would: (1) Discourage excessive future stimulation of palm oil production; (2) Equitably distribute the export supply of palm oil among other developed countries and the United States; (3) Increase palm oil consumption in oil deficit developing countries. The necessity for implementing these proposals is expected to become increasingly acute.

Table 1.--Palm Oil: Production and exports, in major producer-exporter countries and the world, annual 1965-75 with projections for 1976, 1980 and 1985 (In 1,000 metric tons)

Calendar Year	West Malaysia	Sabah	Indonesia	Ivory Coast	Zaire	Subtotal	Other	World total
Production:								
1965.....	149	2	165	28	125	469	809	1,278
1966.....	186	3	175	28	130	522	799	1,321
1967.....	217	9	174	30	149	579	625	1,204
1968.....	265	18	188	31	203	705	691	1,396
1969.....	326	26	189	38	196	775	774	1,549
1970.....	403	27	216	52	201	899	816	1,715
1971.....	551	38	248	55	190	1,082	825	1,907
1972.....	659	72	269	93	190	1,283	860	2,143
1973.....	740	73	290	111	185	1,399	851	2,250
1974.....	942	88	351	145	174	1,700	894	2,594
1975 1/....	1,175	125	370	155	165	1,990	919	2,909
1976 2/....	1,400	150	396	174	168	2,288	936	3,224
1980 3/....	2,400	300	525	250	150	3,625	1,075	4,700
1985 3/....	2,800	375	725	300	125	4,325	1,200	5,525
Exports:	(4/)							
1965.....	141	2	126	(5/)	77	346	204	550
1966.....	181	3	177	(5/)	78	439	194	633
1967.....	180	9	133	(5/)	108	430	66	496
1968.....	268	18	152	(5/)	141	579	49	628
1969.....	331	26	179	1	125	662	45	707
1970.....	372	29	159	13	119	692	50	742
1971.....	535	38	187	28	112	900	67	967
1972.....	628	72	232	48	87	1,067	30	1,097
1973.....	740	73	258	55	70	1,196	22	1,218
1974.....	871	88	282	91	62	1,394	37	1,431
1975 1/....	1,125	125	330	120	60	1,760	40	1,800
1976 2/....	1,375	150	365	140	40	2,070	50	2,120
1980 3/....	2,325	300	440	200	0	3,265	160	3,425
1985 3/....	2,700	375	600	225	-50	3,850	250	4,100

1/ Estimated..
2/ Forecast.
3/ Projection.
4/ Includes unofficial estimates of refined and semirefined palm oil which are not officially reported.
5/ Net imports.

Table 2.—International Financial Institutions-Loans for Oil Palm Production 1965–75

Agency	Country	Amount	Area	Period of Planting	Estimated Production 1975	Estimated Production 1980	Amount of Production Available for Export	Mills
		Million US $	1,000 h.a.	Days	(In 1,000 metric tons)		Percentage	Number
African Development Bank	C.A.R.	2.4	2.0	75–79	0	1	0	
	Sierra Leone	3.6	3.0	73–77	0	9	0	
	Sierra Leone	1.7	2.0	74–78	0	3	0	
Total		[illegible]	7.0		0	13		
Asian Development Bank	Malaysia	2.8	15.8	68–71	57	142	100	
	Indonesia	7.4	11.5	71–74	10	66	75	1
	Indonesia	12.0	4.0	74–76	0	14	100	
Total		[illegible]	[illegible]		67	222		
European Development Fund	Cameroon	6.5	4.4	67–71	7	16	25	
	Cameroon	3.5	6.3	73–76	0	10	25	
	Cameroon	10.4	10.0	73–76	0	16	25	
	C.A.R.	1.4	2.0	70–74	1	5	0	
	Congo (Br.)	3.0	2.2	66–71	4	8	0	
	Dahomey	.5	4.0	66	10	15	25	
	Dahomey	7.5	7.0	68–71	11	28	25	
	Dahomey	3.9	6.0	72–76	1	7	25	
	Ivory Coast	36.5	32.0	70–73	25	96	75	
	Togo	2.7	5.0	66–73	4	12	0	
	Togo	1.0	1.0	73–76	0	2	0	
	Togo	1.6	1.5	74–78	0	1	0	
	Zaire	3.6	3.5	72–76	1	6	25	
Total		82.1	84.9		[illegible]	222		
European Investment Bank	Ivory Coast	9.1	--	--	--	--		2
Inter-American Development Bank	C.A.R.	2.4	2.0	75–79	0	1	0	
	Colombia	1.2	4.0	65–67	16	28	0	
	Ecuador	2.4	3.0	65–70	6	11	0	
	Honduras	1.5	1.0	70–74	1	3	0	
	Honduras	3.0	2.0	77–80	0	0	0	
	Peru	.8	.5	67–71	1	2	0	
	Sierra Leone	3.6	2.0	73–76	0	3	0	
	Sierra Leone	1.7	1.5	74–77	0	2	0	
Total		15.6	16.0		24	50		
International Bank for Reconstruction & Development	Cameroon	9.0	7.9	67–74	8	18	25	
	Cameroon	7.9	9.0	68–73	9	24	25	
	Cameroon	9.6	8.5	74–78	0	5	25	2
	Dahomey	4.2	6.0	68–70	13	32	25	
	Ghana	13.6	12.0	74–78	0	11	0	
	Ghana	17.0	14.0	74–78	0	16	0	
	Indonesia	12.7	13.7	69–73	24	93	75	
	Indonesia	13 2	8.0	70–74	7	46	75	
	Ivory Coast	14.1	19.0	68–74	17	44	75	
	Ivory Coast	2.6	10.5	74–79	0	8	75	
	Malaysia	9.5	11.1	67–70	52	113	100	
	Malaysia	8.6	6.7	71–72	12	77	100	1
	Malaysia	11.9	8.6	73–76	0	31	100	
	Malaysia	36.0	22.3	74–82	0	17	100	2
	Nigeria	17.0	16.0	75–79	0	9	0	
	Nigeria	29.5	20.0	75–79	0	12	0	
	Nigeria	19.0	16.0	75–79	0	9	0	
	Papua N. Guinea	1.5	4.6	68–72	6	15	100	
	Papua N. Guinea	[illegible]	7.3	70–75	4	16	100	
Total		[illegible]	221.7		152	[illegible]		

Grand Totals	Amount	Area	Increase over previous acreage percentage 75	80	Estimated Production 1975	Estimated Production 1980	Amount Available for Export (Actual) 1975	1980	Mills
Western Hemisphere	8.9	10.5	10	5	24	50			
Africa	253.8	248.7	20	20	121	460			
Asia	104.1	131.7	25	10	162	509			
Total	370.8	370.9	20	15	397 1/	1,109 2/	210	737	8

1/ 11 percent increase over production from previous acreage.
2/ [illegible] production from previous acreage.

Table 3.—West Malaysia: Palm oil estimated supply and distribution annual 1968-73, forecast 1974-75 and projection 1976, 1980, and 1985

Supply and Distribution	1968	1969	1970	1971	1972	1973	Forecast 1974	Forecast 1975	Projection 1976	Projection 1980	Projection 1985
	(In 1,000 metric tons)										
Supply:											
Stocks, January 1	35	25	14	36	44	66	61	92	115	150	200
Production	265	326	403	551	659	740	942	1,175	1,400	2,400	2,800
Imports	--	--	2	4	1	--	1	--	--	--	--
Total supply	300	351	419	591	704	806	1,004	1,267	1,515	2,550	3,000
Distribution:											
Exports:											
Crude	268	331	372	535	625	724	813	975	1,175	1,900	2,100
Semi-refined 1/	--	--	--	--	3	16	59	150	200	425	600
Apparent domestic disappearance	7	6	11	12	10	5	2/ 40	27	40	75	100
Stocks, December 31	25	14	36	44	66	61	92	115	100	150	200
Total distribution	300	351	419	591	704	806	1,004	1,267	1,515	2,550	3,000
Plantation acreage: Unit											
Total planted: 1,000 acres	498	598	680	769	873	1,036	1,244	1,311	1,392	1,550	(3/)
Estimated harvested: 1,000 acres	185	228	289	382	473	567	646	819	971	1,400	1,500
Harvested as a proportion of total planted area: Percent	37	38	43	50	54	55	52	56	60	85	(3/)
Yield per harvested area: Metric tons per acre	1.43	1.43	1.39	1.44	1.39	1.31	1.46	1.43	1.44	1.71	1.87

Source: Oil Palm Monthly Statistics of Malaysia and FAS forecasts.

1/ Unofficial estimates. Exports of refined palm oil not included in officially reported [illegible] exportation.

2/ Probably overestimated due to underestimate of refined oil exports.

3/ Not available.

Table 4.--Palm oil exports from Peninsular Malaysia to the United States and total, monthly January 1972-July 1975

(In 1,000 long tons)

	1972			1973			1974			1975		
	U.S.	Total	U.S. as percent of total	U.S.	Total	U.S. as percent of total	U.S.	Total	U.S. as percent of total	U.S.	Total	U.S. as percent of total
January	9.3	53.9	17.3	6.3	45.8	13.8	3.4	53.6	6.3	17.8	61.6	28.9
February	5.4	48.5	11.1	10.2	42.0	24.3	2.4	54.1	4.4	18.8	59.5	31.6
March	5.1	38.6	13.2	5.9	66.6	8.9	5.7	52.4	10.9	14.6	82.7	17.7
April	6.4	46.6	13.7	10.2	68.6	14.9	5.4	67.7	8.0	20.6	88.7	23.2
May	9.1	48.4	18.8	9.3	61.8	15.0	4.8	52.0	9.2	21.2	51.0	45.6
June	8.6	37.9	22.7	7.0	42.1	16.6	6.4	63.5	10.1	12.5	56.8	22.0
July	11.8	46.6	25.3	5.0	49.5	10.1	12.7	58.9	21.6	28.6	69.7	41.0
Subtotal	55.7	320.5	17.7	53.9	376.4	14.3	40.8	402.2	10.1	134.1	470.0	28.5
August	1.0	39.5	2.5	- -	60.5	0	21.2	80.6	26.3			
September	13.9	65.7	21.2	17.6	63.1	27.9	6.8	65.0	10.5			
October	3.1	57.7	5.4	9.0	77.6	11.6	2.7	65.3	4.1			
November	10.3	56.3	18.3	4.1	62.2	6.6	17.6	79.4	22.2			
December	0.5	75.9	0.6	4.0	73.5	5.4	16.6	107.2	15.5			
Total 1/	84.5	615.4	13.7	88.5	713.3	12.4	105.9	799.9	13.3			

1/ Totals may not add due to rounding.

Source: Oil Palm Monthly Statistics of Malaysia, Department of Statistics, Kuala Lumpur, Malaysia.

Table 5.—Palm Oil: Apparent consumption in selected countries and the world 1/, annual 1965–75, with 1976 forecast and projections for 1980 and 1985

(In 1,000 metric tons)

Year	Palm oil producing countries: Major	Other	Total	United States	United Kingdom	West Germany	Netherlands	Other EC	Japan	Iraq	India	Other	World
1965	123	605	728	3	117	103	60	101	16	50	7	93	1,278
1966	83	605	688	34	150	115	61	107	20	36	11	99	1,321
1967	149	559	708	29	99	99	57	110	22	52	8	2/ 20	1,204
1968	126	642	768	47	109	126	60	104	28	54	1	99	1,396
1969	113	729	842	72	139	132	61	119	42	58	0	84	1,549
1970	207	766	973	64	162	116	70	119	40	66	0	105	1,715
1971	182	758	940	98	223	150	86	143	41	78	1	147	1,907
1972	216	830	1,046	196	208	151	105	131	55	82	1	168	2,143
1973	203	829	1,032	177	244	152	95	155	100	105	52	138	2,250
1974 3/	4/ 306	857	1,163	187	296	133	96	150	115	125	53	276	2,594
1975 5/	230	879	1,109	400	275	155	110	165	110	135	50	400	2,909
1976 6/	218	886	1,104	525	300	165	115	200	120	145	25	525	3,224
1980 7/	350	1,050	1,400	1,000	325	200	130	240	140	165	80	1,000	4,480
1985 7/	450	1,200	1,650	1,125	400	250	150	300	200	200	125	1,125	5,525

1/ Data based on production plus net trade and do not include allowances for stock changes.
2/ Indicates stock depletion caused by a significant reduction in world output and stock building in the major producer-exporter countries.
3/ Preliminary.
4/ Possibly over estimated due to the fact that no official Malaysian export statistics are yet available for refined palm oil and only exports of crude palm oil are officially reported.
5/ Estimated.
6/ Forecast.
7/ Projected.

Table 6.--Palm oil: Proportion of palm oil consumption by selected countries and the world, annual 1965-75 with 1976 forecasts and projections for 1980 and 1985

(In percent)

Year	Palm oil producing countries: Major	Other	Total	United States	United Kingdom	West Germany	Netherlands	Other EC	Japan	Iraq	India	Other	World
5	9.6	47.3	56.9	0.2	9.2	8.1	4.7	7.9	1.3	3.9	0.5	7.3	100.0
6	6.2	45.8	52.0	2.6	11.4	8.7	4.6	8.1	1.5	2.7	0.8	7.6	100.0
7	12.4	46.4	58.8	2.4	8.2	8.2	4.7	9.1	1.8	4.3	0.7	1.8	100.0
8	9.0	46.0	55.0	3.4	7.8	9.0	4.3	7.4	2.0	3.9	(1/)	7.2	100.0
9	7.3	47.1	54.4	4.6	9.0	8.5	3.9	7.7	2.7	3.7	0	5.5	100.0
0	12.1	44.7	56.8	3.7	9.4	6.8	4.1	6.9	2.3	3.8	0	6.2	100.0
1	9.6	39.7	49.3	5.1	11.7	7.9	4.5	7.5	2.1	4.1	(1/)	7.8	100.0
2	10.1	38.7	48.8	9.2	9.7	7.0	4.9	6.1	2.6	3.8	(1/)	7.9	100.0
3	9.0	36.9	45.9	7.9	10.8	6.8	4.2	6.9	4.4	4.7	2.3	6.1	100.0
4	11.8	33.1	44.9	7.2	11.4	5.1	3.7	5.8	4.4	4.8	2.0	10.7	100.0
5 2/	7.9	30.2	38.1	13.7	9.5	5.3	3.8	5.7	3.8	4.6	1.7	13.8	100.0
6 3/	6.8	27.4	34.2	16.3	9.3	5.1	3.6	6.2	3.7	4.5	0.8	16.3	100.0
0 4/	7.4	22.4	29.8	21.3	6.9	4.2	2.8	5.1	3.4	3.5	1.7	21.3	100.0
5 4/	8.1	21.8	29.9	20.4	7.2	4.5	2.7	5.4	3.6	3.6	2.3	20.4	100.0

1/ Less than 0.05 percent. 2/ Estimated. 3/ Forecast. 4/ Projection.

Based on data in Table 5.

Table 7.--Indicated population and per capita consumption of palm oil in selected countries and the world, 1965, 1970, 1975 estimate and projections for 1980 and 1985

Year	West and East Malaysia	Indonesia	United States	United Kingdom	West Germany	Netherlands	Other EC	Japan	Iraq	India	Other	World
					(In millions of persons)							
1965	9.4	105.7	196.9	54.2	58.7	12.3	118.1	98.9	8.0	506.0	2,126.2	3,294.4
1970	11.0	119.7	204.9	55.4	60.7	13.0	122.5	104.3	9.4	564.8	2,351.6	3,617.3
1975 1/	12.5	137.0	216.5	56.2	62.6	13.7	127.3	110.8	11.0	630.0	2,592.4	3,970.0
1980 2/	14.3	156.8	224.4	56.9	64.1	14.4	132.3	117.6	13.0	702.5	2,853.7	4,350.0
1985 2/	16.4	179.4	232.8	57.5	65.6	15.1	137.8	124.8	15.2	783.2	3,147.2	4,775.0
Estimated per capita consumption of palm oil:					(In pounds per person)							
1965	1.9	0.8	(3/)	4.8	3.9	11.7	1.9	0.4	13.8	(3/)	0.1	0.9
1970	5.8	1.0	0.7	6.4	4.2	15.1	2.1	0.8	15.5	0	0.1	1.0
1975 1/	8.8	0.6	3.9	10.8	5.5	18.5	3.0	2.2	27.1	0.2	0.3	1.6
1980 4/	11.6	1.2	9.8	12.6	6.9	19.9	4.0	3.0	28.0	0.3	0.8	2.4
1985 4/	13.4	1.5	10.7	15.3	8.4	21.9	4.8	3.5	29.0	0.4	0.8	2.6

1/ Estimated. 2/ Projected on current compound annual growth rates. 3/ Negligible. 4/ Projected on the basis of consumption estimates indicated on Table 5 divided by population projections indicated above.

Table 8.--Palm Oil: Imports into specified countries, semiannual 1965-71

(In 1,000 metric tons)

Country	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974 1/
Belgium-Luxembourg	28	27	28	28	22	25	26	29	35	36
Denmark	1	1	1	1	4	5	10	8	10	10
France	37	41	42	35	35	41	49	43	57	56
Germany, West	103	115	99	126	132	116	150	151	152	133
Ireland	3	5	3	2	3	4	4	4	6	4
Italy	32	33	36	37	53	43	54	52	57	54
Netherlands	65	69	65	71	77	89	129	162	161	147
United Kingdom	117	150	99	109	139	162	223	208	241	296
Total EC	386	441	373	409	465	485	645	661	718	726
Canada	9	12	10	8	16	12	13	31	20	16
United States	3	34	29	47	72	64	98	196	177	187
Portugal	14	16	16	14	18	19	20	18	16	22
Sweden	2	2	2	3	3	5	8	8	5	8
India	7	11	8	1	(2/)	(2/)	1	1	52	53
Iraq	50	36	52	54	58	66	78	82	105	125
Japan	16	20	22	28	42	40	41	55	100	115
Philippines	6	6	6	8	8	5	7	3	3	4
Ivory Coast	1	4	1	2	1	(2/)	(2/)	(2/)	(2/)	0
Kenya	5	4	2	6	12	7	15	15	17	11
Total	499	586	521	580	695	703	926	1,060	1,307	1,370

1/ Preliminary. 2/ Less than 500 tons.

Table 9 .—United States: Palm oil imports by country of origin, annual 1965–74 and January–September 1974 and 1975
(In 1,000 metric tons)

Country of origin	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974 1/	January–September 1974 1/	January–September 1975 1/
Africa:												
Nigeria	0	2.8	1.2	0	0	0	0.8	0	(2/)	(2/)	(2/)	1.0
Zaire	1.1	1.3	0.3	1.0	0.9	0	0	0.5	0	0	0	0
Total	1.1	4.1	1.5	1.0	0.9	0	0.8	0.5	(2/)	(2/)	(2/)	1.0
Asia:												
Indonesia	1.8	21.4	18.5	19.7	37.9	36.7	55.8	67.9	60.7	49.1	31.2	25.1
Japan	0	0	0	0	0	0	0.5	0.5	0	0	0	0
Philippines	0	0	0	0	0.5	0	0	1.6	0.5	0	0	3.6
Singapore	0	0	0	0	1.2	0	0	9.9	2.0	12.2	8.6	17.0
West Malaysia	0	8.8	7.8	25.8	31.5	20.8	45.5	114.6	111.6	122.0	75.4	220.9
Total	1.8	30.2	26.3	45.5	71.1	57.5	101.8	194.5	174.8	183.3	115.2	266.6
Others	0.1	0.1	1.3	0.4	0.4	6.4	0.3	0.6	0.8	3.3	2.3	4.7
Grand total	3.0	34.4	29.1	46.9	72.4	63.9	102.9	195.6	175.6	186.6	117.5	274.3

1/ Preliminary. 2/ Less than 50 tons.

U.S. Bureau of Census.

Table 10.—U.S. imports of palm oil, monthly 1972–74 and January–October 1975

(In million pounds)

Month	1972	1973	1974	1975
January	44.3	25.6	26.4	48.8
February	37.6	65.7	18.8	56.1
March	29.1	25.2	19.7	63.7
April	36.8	26.5	22.0	29.6
May	24.7	16.5	41.3	64.8
June	58.3	47.1	13.3	69.6
July	84.6	36.7	25.3	131.1
August	30.8	17.3	46.8	56.7
September	25.4	40.1	45.5	84.2
October	29.6	17.3	69.4	100.0
November	12.2	41.3	35.2	
December	20.6	30.8	47.7	
Total	434.0	390.1	411.4	

U.S. Bureau of Census.

Table 11.--Palm oil: U.S. supply, disposition and price, 1965-75

Calendar year	Supply: Imports 1/	Supply: Stocks: Total	Supply: Stocks: GSA	Supply: Stocks: Trade	Supply: Total	Disposition: Exports	Disposition: Domestic disappearance	Price per pound: Clarified, drums, truckload, New York	Price per pound: Tank wagons, New York	Price per pound: Malaya, 5% bulk, c.i.f., European ports
	(In Million pounds)							(In cents)		
1965	7	19	10	9	26	- -	2/ 30	15.8	13.4	12.4
1966	76	9	- -	9	85	- -	2/ 66	15.1	12.7	10.7
1967	64	33	- -	33	97	- -	2/ 86	14.8	12.6	10.2
1968	103	16	- -	16	119	- -	2/ 97	14.5	12.0	7.7
1969	160	28	- -	28	188	- -	153	12.5	11.2	8.1
1970	141	35	- -	35	176	5	128	15.9	13.2	11.6
1971	217	43	- -	43	260	7	213	15.1	13.3	11.7
1972	431	40	- -	40	471	38	340	(3/)	10.6	9.6
1973	387	93	- -	93	480	34	388	(3/)	14.6	17.7
1974	411	58	- -	58	469	24	342	(3/)	26.9	31.3
Jan.-Sept. 1975	605	103	- -	103	708	23	562	(3/)	(3/)	19.5

1/ Palm oil enters the United States duty free. 2/ Reported factory consumption figures used for years in which it exceeds calculated domestic disappearance. 3/ Not available.

Source: S & D Table and U.S. price data compiled from Fats and Oils Section Economic Research Service European.

Table 12.--Palm oil: U.S. utilization, by products, 1965-75 1/

Calendar year	Food				Nonfood				Total domestic disappearance
	Shortening	Margarine	Other	Total	Soap	Fatty acids	Other	Total	
	(In Million pounds)								
1965	13	--	--	13	--	(2/)	17	17	30
1966	38	--	14	52	--	(2/)	14	14	66
1967	61	--	1	62	--	(2/)	24	24	86
1968	72	--	4	76	--	(2/)	20	20	97
1969	110	--	18	128	--	(2/)	25	25	153
1970	85	1	14	100	--	(2/)	28	28	128
1971	175	1	18	194	--	(2/)	19	19	213
1972	287	1	42	330	--	(2/)	10	10	340
1973	333	7	35	375	--	(2/)	13	13	388
Jan.-Sept. 1974	187	--	15	202	--	(2/)	8	8	210
1975	491	16	49	556	--	(2/)	6	6	562

1/ Mostly ERS estimates, as Census end-use data are limited in order to avoid disclosing figures for individual companies. 2/ Census disclosure.

Source: U.S. Bureau of Census data obtained from the Fats and Oils Section of ERS.

Table 13.—U.S. Domestic disappearance of selected oils and total edible oils and fats, years beginning October 1, 1965-75, with projections for 1980 and 1985

(In million pounds)

Year beginning October 1	Palm oil	Cotton-seed oil	Soybean oil	Subtotal	Other edible vegetable oils	Animal fats	Total	Palm oil as % of Subtotal	Palm oil as % of Total
								Percent	Percent
965	34	1,590	4,687	6,311	1,522	3,399	11,232	0.5	0.3
966	93	1,157	4,837	6,087	1,730	3,432	11,249	1.5	0.8
967	57	1,090	5,096	6,243	1,664	3,573	11,480	0.9	0.5
968	161	1,031	5,756	6,948	1,639	3,398	11,985	2.3	1.3
969	122	1,052	6,328	7,502	1,654	3,075	12,231	1.6	1.0
970	182	890	6,253	7,325	1,622	3,238	12,185	2.5	1.5
971	351	834	6,439	7,624	1,768	3,069	12,461	4.7	2.8
72	356	980	6,685	8,021	1,846	2,688	12,555	4.4	2.8
73	294	991	7,255	8,540	1,410	2,614	12,564	3.4	2.3
74	675	650	6,450	7,775	1,420	2,530	11,725	8.7	5.8
75 1/	800	650	6,900	8,350	1,545	2,350	12,245	9.6	6.5
80 3/	768	397	8,438	9,603	1,519	2,019	13,141	8.0	5.8
	3/ 1,000	4/ 730	4/ 8,200	9,930	2/ 1,519	2/ 2,019	13,468	10.1	7.4
	3/ 1,000	5/ 403	4/ 8,200	2/ 9,603	2/ 1,519	2/ 2,019	2/ 13,141	10.4	7.6
85 2/	1,050	66	9,732	10,848	1,461	1,450	13,759	9.7	7.6

Forecast. 2/ Linear trend projection based on 1965-74 data. 3/ Projection, see table 5. 4/ Interagency committee Projection. 5/ Residual.

Data for 1965-75 period from Fats and Oils Situation Report, ERS, October 1975.

Table 14.--U.S. exports of soybean and cottonseed oil and U.S. palm oil imports and world palm oil exports with comparisons annual 1965-76 with 1980 and 1985 projections

Year	U.S. oil exports			U.S. imports of palm oil	World palm oil exports	U.S. palm oil imports as percent of world exports	U.S. palm oil imports as a percent of U.S. exports of soybean and cottonseed oils
	Soybean	Cottonseed	Total				
	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	Percent	Percent
1965	553	256	809	3	550	0.5	+0
1966	394	84	478	34	633	5.4	7
1967	515	34	549	29	496	5.8	5
1968	434	27	461	47	628	7.5	10
1969	403	118	521	72	707	10.2	14
1970	681	170	851	64	742	8.6	8
1971	784	182	966	98	967	10.1	10
1972	595	216	811	196	1,097	17.9	24
1973	439	248	687	177	1,218	14.5	26
1974	759	277	1,036	187	1,431	13.1	18
1975 1/	355	300	655	400	1,800	22.2	61
1976 2/	375	275	650	525	2,120	24.8	81
1980 3/	4/545	4/275	4/820	1,000	3,425	29.2	122
1985 3/	(5/)	(5/)	(5/)	1,125	4,100	27.4	(5/)

1/ Estimated. 2/ Forecast. 3/ Projection. 4/ Based on Interagency Committee estimates as of November 11, 1975.
5/ Not available.

Table 15.--World Fats and Oil production and exports of palm and total oils, comparisons, annual 1965-76 and projection for 1980 and 1985

Calendar year	World oil production 1/					World oil exports 2/						
	Palm	Palm as percent of total oil production	All oils and fats: Actual	All oils and fats: 1965-74 trend	All oils and fats: Deviation from trend	Palm	Palm as percent of total	All oils and fats: Actual	All oils and fats: 1965-74 trend	All oils and fats: Deviation from trend	Proportion exported: Palm	Proportion exported: All oils
	Million metric tons	Percent	Million metric tons	Million metric tons	Million metric tons	Million metric tons	Percent	Million metric tons	Million metric tons	Million metric tons	Percent	Percent
1965	1.28	3.6	35.31	34.69	+6.2	.55	5.6	9.78	9.84	-.06	43	28
1966	1.32	3.7	35.86	35.88	-.02	.63	6.2	10.21	10.28	-.07	48	28
1967	1.20	3.2	37.20	37.06	+.14	.50	4.6	10.79	10.72	+.07	42	29
1968	1.40	3.6	38.37	38.25	+.12	.63	5.5	11.41	11.15	+.26	45	30
1969	1.55	4.0	38.48	39.43	-.95	.71	6.3	11.19	11.59	-.40	46	29
1970	1.72	4.3	39.93	40.61	-.68	.74	6.1	12.07	12.03	+.04	43	30
1971	1.91	4.5	42.25	41.80	+.45	.97	7.7	12.65	12.47	+.18	51	30
1972	2.14	4.9	43.47	42.98	+.49	1.10	8.3	13.31	12.91	+.40	51	31
1973	2.25	5.3	42.65	44.17	-1.52	1.22	9.2	13.31	13.35	-.04	54	31
1974	2.59	5.5	46.80	45.35	+1.45	1.43	10.6	13.50	13.79	-.29	55	29
1975 3/	2.91	6.4	45.71	46.54	-.83	1.80	13.0	13.86	14.23	-.37	62	30
1976 4/	3.22	6.6	48.57	47.72	+.85	2.12	14.2	14.97	14.66	+.31	66	31
Projections:												
1980	5/ 4.70	8.7	6/53.86	52.46	+1.40	5/3.43	19.1	7/ 17.99	16.42	+1.57	73	33
1985	5/ 5.53	9.2	6/59.86	58.38	+1.48	5/4.10	20.1	7/ 20.36	18.61	+1.75	74	34

1/ Includes edible and inedible vegetable, animal and marine oils and fats. 2/ Includes oil equivalent of seed exports. 3/ Estimated. 4/ Forecast. 5/ Projection see Table 1. 6/ Based on linear trend projection of world production of all oils less palm oil ($Y=32.61 + 1.03 x$; $R^2=.9391$; S.E. = .76) added to projected world palm oil production. 7/ Based on linear trend projection of world exports of all oils less palm oil ($Y=9.10 + .34 x$; $R^2=.9288$; S.E. = .27) added to projected world palm oil production.

Table 16.--Palm oil prices basis Malaysia, U.S. and Europe, with spreads, monthly 1972-74 and January-September 1975

(In U.S. dollars per metric ton)

Year/Month	Malaysia 1/	U.S. 2/	U.S. less Malaysia	Europe 3/	Europe less Malaysia
1972:					
January	228	239	11	193	-35
February	211	252	41	177	-34
March	167	202	35	210	43
April	156	223	67	227	71
May	177	186	9	215	38
June	162	187	25	207	45
July	167	169	2	210	43
August	171	201	30	219	48
September	183	174	-9	225	42
October	183	190	7	225	42
November	189	183	-6	215	26
December	188	178	-10	210	22
Average	182	199	17	211	29
1973:					
January	188	192	4	210	22
February	189	182	-7	249	60
March	188	195	7	266	78
April	199	197	-2	293	94
May	192	200	8	339	147
June	212	230	18	393	181
July	208	246	38	490	282
August	288	294	6	557	269
September	251	277	26	407	156
October	302	354	52	422	120
November	275	358	83	470	195
December	321	385	64	583	262
Average	234	259	25	390	156
1974:					
January	293	308	15	693	400
February	355	354	-1	752	397
March	341	467	126	710	369
April	482	450	-32	613	131
May	436	499	63	611	175
June	455	502	47	611	156
July	475	471	-4	639	164
August	518	504	-14	721	203
September	545	529	-16	714	169
October	588	587	-1	799	211
November	619	580	-39	765	146
December	659	635	-24	668	9
Average	480	490	10	691	211
1975:					
January	627	688	61	552	-75
February	650	607	-43	461	-189
March	609	619	10	450	-159
April	501	636	135	438	-63
May	492	543	51	378	-114
June	397	507	110	332	-65
July	368	453	85	387	19
August	311	420	109	452	141
September	323	396	73	417	94
October		360		410	
November				397	
December					

1/ Crude f.o.b. Malaysian ports. 2/ Monthly value of U.S. imports divided by the monthly volume. 3/ Crude, Malaysia 5 percent bulk, c.i.f. North West European ports.

Table 17.—Palm oil prices in the United States and Europe with spreads, monthly 1972-74 and January-September 1975
(In U.S. dollars per metric ton)

Month	1972			1973			1974			1975		
	U.S. 1/	Europe 2/	U.S. less Europe	U.S. 1/	Europe 2/	U.S. less Europe	U.S. 1/	Europe 2/	U.S. less Europe	U.S. 1/	Europe 2/	U.S. less Europe
January	239	193	+46	192	210	-18	308	693	-385	688	552	+136
February	252	177	+75	182	249	-67	354	752	-398	607	461	+146
March	202	210	-8	195	266	-71	467	710	-243	619	450	+169
April	223	227	-4	197	293	-96	450	613	-163	636	438	+198
May	186	215	-29	200	339	-139	499	611	-112	543	378	+165
June	187	207	-20	230	393	-163	502	611	-109	507	332	+175
July	169	210	-41	246	490	-244	471	639	-168	453	387	+66
August	201	219	-18	294	557	-263	504	721	-217	420	452	-32
September	174	225	-51	277	407	-130	529	714	-185	396	417	-21
October	190	224	-34	354	422	-68	587	799	-212		410	
November	183	215	-32	358	470	-112	580	765	-185			
December	178	210	-32	385	583	-198	635	668	-33			
Average	199	211	-12	259	390	-131	490	691	-201			

1/ Monthly value U.S. palm oil imports divided by the monthly volume.
2/ Palm oil crud Malaysia 5 percent bulk c.i.f. North West European ports.

Table 18.--Soybean oil prices in the United States and Europe with spreads monthly, 1972-74 and January-September 1975
(In U.S. dollars per metric ton)

Month	1972			1973			1974			1975		
	U.S. 1/	Europe 2/	U.S. less Europe	U.S. 1/	Europe 2/	U.S. less Europe	U.S. 1/	Europe 2/	U.S. less Europe	U.S. 1/	Europe 2/	U.S. less Europe
January	240	249	-9	223	239	-16	631	665	-34	741	775	-34
February	243	246	-3	287	291	-4	802	780	+22	648	661	-13
March	258	258	0	306	311	-5	666	711	-45	642	622	+20
April	262	272	-10	331	333	-2	622	660	-38	622	624	-2
May	251	252	-1	377	373	+4	648	775	-127	520	516	+4
June	236	234	+2	425	455	-30	697	788	-91	514	525	-11
July	227	226	+1	494	550	-56	893	872	+21	606	578	+28
August	223	223	0	739	548	+191	955	922	+33	627	599	+28
September	216	225	-9	536	508	+28	897	933	-36	539	551	-12
October	212	228	-16	509	531	-22	933	1,045	-112	475	495	-20
November	212	240	-28	450	490	-40	891	943	-52	423		
December	214	234	-20	573	603	-30	838	892	-54			
Average	233	241	-8	437	436	+1	789	832	-43			

1/ Soybean oil crude, tank cars, f.o.b. Decatur.
2/ Soybean oil crude, f.o.b. Dutch mills.

Table 17.—U.S. Prices for Palm and Soybean Oil, monthly 1972-74 and January-September 1975
(In U.S. dollars per metric ton)

Month	1972			1973			1974			1975		
	Palm 1/	Soy 2/	Palm less soy	Palm 1/	Soy 2/	Palm less soy	Palm 1/	Soy 2/	Palm less soy	Palm 1/	Soy 2/	Palm less soy
January	239	240	-1	192	223	-31	308	631	-323	688	741	-53
February	252	243	+9	182	287	-105	354	802	-448	607	648	-41
March	202	258	-56	195	306	-111	467	666	-199	619	642	-23
April	223	262	-39	197	331	-134	450	622	-172	636	622	+14
May	186	251	-65	200	377	-177	499	648	-149	543	520	+23
June	187	236	-49	230	425	-195	502	697	-195	507	514	-7
July	169	227	-58	246	494	-248	471	893	-422	453	606	-153
August	201	223	-22	294	739	-445	504	955	-451	420	627	-207
September	174	216	-42	277	536	-259	529	897	-368	396	539	-143
October	190	212	-22	354	509	-155	587	933	-346	360	475	-115
November	183	212	-29	358	450	-92	580	891	-311		423	
December	178	214	-36	385	573	-188	635	838	-203		3/ 415	
Average	199	233	-34	259	437	-178	490	789	-299			

1/ Monthly value U.S. palm oil imports divided by the monthly volume.
2/ Crude oil, tank cars, f.o.b. Decatur.
3/ Preliminary as of December 4.

Table 20.—European Prices for Palm and Soybean Oil, monthly 1972-74 and January-September 1975
(In U.S. dollars per metric ton)

Month	1972			1973			1974			1975		
	Palm 1/	Soy 2/	Palm less soy	Palm 1/	Soy 2/	Palm less soy	Palm 1/	Soy 2/	Palm less soy	Palm 1/	Soy 2/	Palm less soy
January	193	249	-56	210	239	-29	693	665	+28	552	775	-223
February	177	246	-69	249	291	-42	752	780	-28	461	661	-200
March	210	258	-48	266	311	-45	710	711	-1	450	622	-172
April	227	272	-45	293	333	-40	613	660	-47	438	624	-186
May	215	252	-37	339	373	-34	611	775	-164	378	516	-138
June	207	234	-27	393	455	-62	611	788	-177	332	525	-193
July	210	226	-16	490	550	-60	639	872	-233	387	578	-191
August	219	223	-4	557	548	+9	721	922	-201	452	599	-147
September	225	225	0	407	508	-101	714	933	-219	417	551	-134
October	224	228	-4	422	531	-109	799	1,045	-246	410	495	-85
November	215	240	-25	470	490	-20	765	943	-178	395	423	-28
December	210	234	-24	583	603	-20	668	892	-224	3/ 381	415	-34
Average	211	241	-30	390	436	-46	691	832	-141			

1/ Soybean oil crude, f.o.b. Dutch mills.
2/ Palm oil, crude, Malaysian 5 percent, bulk c.i.f. North West European ports.
3/ Preliminary as of December 4, 1975
Source: Oil World

Table 21.—Relative price discounts for palm oil in the U.S. and Europe with comparisons, monthly 1972-74 and January-September 1975
(In U.S. dollars per metric ton)

Month	1972			1973			1974			1975		
	U.S.	Europe	U.S. less Europe	U.S.	Europe	U.S. less Europe	U.S.	Europe	U.S. less Europe	U.S.	Europe	U.S. less Europe
January	-1	-56	+55	-31	-29	-2	-323	+28	-351	-53	-223	+170
February	+9	-69	+78	-105	-42	-63	-448	-28	-420	-41	-200	+159
March	-56	-48	-8	-111	-45	-66	-199	-1	-198	-23	-172	+149
April	-39	-45	+6	-134	-40	-94	-172	-47	-125	+14	-186	+200
May	-65	-37	-28	-177	-34	-143	-149	-164	+15	+23	-138	+161
June	-49	-27	-22	-195	-62	-133	-195	-177	-18	-7	-193	+186
July	-58	-16	-42	-248	-60	-188	-422	-233	-189	-153	-191	+38
August	-22	-4	-18	-445	+9	-454	-451	-201	-250	-207	-147	-60
September	-42	0	-42	-259	-101	-158	-368	-219	-149	-143	-134	-9
October	-22	-4	-18	-155	-109	-46	-346	-246	-100	-115	-85	-30
November	-29	-25	-4	-92	-20	-72	-311	-178	-133		-28	
December	-36	-24	-12	-188	-20	-168	-203	-224	+21		-34	
Average	-34	-30	-4	-178	-46	-132	-299	-141				

Summation of first differences indicated in Tables 19 and 20.

Table 22.--U.S. soybean oil prices correlated with palm oil prices in Malaysia, the United States and Europe, monthly 1972-74 and January 1975 to date

(In U.S. dollars per metric ton)

Year/Month	Soybean oil: U.S. 1/	Palm oil: Malaysia 2/	Palm oil: U.S. 3/	Palm oil: Europe 4/
1972:				
January	240	177	186	177
February	243	162	187	210
March	258	167	169	227
April	262	171	201	215
May	351	183	174	207
June	236	183	190	210
July	227	189	183	219
August	223	188	178	225
September	216	188	192	224
October	212	189	182	215
November	212	188	195	210
December	214	199	197	210
1973:				
January	223	192	200	249
February	287	212	230	266
March	306	208	246	293
April	331	288	294	339
May	377	251	277	393
June	425	302	354	490
July	494	275	358	557
August	739	321	385	407
September	536	293	308	422
October	509	355	354	470
November	450	341	467	583
December	573	482	450	693
1974:				
January	631	436	499	752
February	802	455	502	710
March	666	475	471	613
April	622	518	504	611
May	648	545	529	611
June	697	588	587	639
July	893	619	580	721
August	955	659	635	714
September	897	627	688	799
October	933	650	607	765
November	891	609	619	668
December	838	501	636	552
1975:				
January	741	492	543	461
February	648	397	507	450
March	642	368	453	438
April	622	311	420	378
May	520	323	396	332
June	514		360	387
July	606			452
August	627			417
September	539			410
October	475			395
November	423			381
December	415			

1/ Soybean oil crude, tank cars, f.o.b. Decatur. 2/ Malaysian palm oil, crude, f.o.b. Malaysian ports, data advanced 4 months to correlate with U.S. soybean oil prices. 3/ Monthly value of U.S. palm oil imports divided by monthly volume, data advanced 4 months to correlate with U.S. soybean oil prices. 4/ Palm oil crude, Malaysia 5 percent bulk c.i.f. North West European ports advanced one month to correlate with U.S. soybean oil prices.

Table 23.—EC, Japan, and U.S. Tariff Rates on Palm, Soybean, and Cottonseed Oils
(In percent)

Commodity and Classification	EC 1/				Japan					U.S. 4/	
	EC-6	Lome 2/3/	Malaysia: General	Malaysia: Commonwealth 5/	MFN	General	GSP	Temporary			
Palm Oil											
Crude, industrial or technical purposes	4	Free	6.4	2.4	8	10	4	--		Free	Free
Oil other than crude, industrial and technical purposes	8	Free	8.8	4.8	8	10	4	--		Free	Free
Crude oil, non-technical purposes	6	Free	7.6	3.6	8	10	4	--		Free	Free
Oil other than crude, non-technical purposes	14	Free	12.4	8.4	8	10	4	--		Free	Free
Soybean Oil					6/						
Crude, industrial or technical purposes	5	Free	9	3	A: 28 B: 20	A: 28 B: 20	A: 23 B: 17	--		22.5	45
Oil other than crude, industrial and technical purposes	8	Free	10.8	4.8	A: 28 B: 20	A: 28 B: 20	A: 23 B: 17	--		22.5	45
Crude oil, non-technical purposes	10	Free	12	6	A: 28 B: 20	A: 28 B: 20	A: 23 B: 17	--		22.5	45
Oil other than crude, non-technical purposes	15	Free	15	6	A: 28 B: 20	A: 28 B: 20	A: 23 B: 17	--		22.5	45
Cottonseed Oil										7/	
Crude, industrial or technical purposes	5	Free	7	3	20	30	--	17		3	3
Oil other than crude industrial and technical purposes	8	Free	8.8	4.8	20	30	--	17		3	3
Crude oil, non-technical purposes	10	Free	10	6	20	30	--	17		3	3
Oil other than crude, non-technical purposes	15	Free	13	4	20	30	--	17		3	3

1/ The EC can impose a countervailing charge on imports of palm and other vegetable oils if the EC believes imports have benefitted from subsidies or measures of equivalent effect. Such a charge has not been imposed on palm oil imports.
2/ Zaire and the Ivory Coast are members of the Lome Convention. Malaysia and Indonesia are not members.
3/ Palm oil will be eligible for STABEX funds. The STABEX scheme has not yet been implemented.
4/ For purposes of negotiation, the duty on oil other than for the manufacture of iron or steel products or of tin plate or terne plate is 3 cents per lb.; in other words, the bound rate of duty for palm oil other than for metallurgical purposes is 3¢/lb.
5/ Includes Malaysia.
6/ A: Acid content more than 6 percent; B: Acid content less than 6 percent.
7/ Specific duty, in ¢/lb. All others ad valorem.

Appendix - A

PALM OIL

U.S. Tariff History

The tariff history on palm oil has been closely tied to other related oils such as coconut or palm-kernel oils. The Revenue Act of 1934 imposed a tax of 3 cents per pound on the first domestic processing of palm kernel oil and palm oil (except palm oil used in the manufacture of iron or steel products, tinplate or terne plate or any subsequent use of palm oil residue resulting from the manufacture of iron or steel products, tinplate or terne plate), and on derivatives (fatty acids, salts, etc.) of palm kernel oil.

The processing tax provisions were carried over into the Internal Revenue Code of 1954 as section 4511. Aside from the processing taxes, which were technically "internal" taxes, no additional duty was imposed on palm oil. The processing taxes acted as import duties and were subsequently incorporated into the Tariff Schedule of the United States (TSUS), and IRS section 4511 was repealed.

The processing taxes were imposed in 1934, principally to protect domestically produced vegetable oils in their use in the production of edible products such as margarine. The fact that the major use of coconut oil--the principal oil involved -- shifted from food to industrial use, the 3 cents per pound processing tax was suspended in 1957 until July 1, 1960 (PL-85-235 sec.3). That legislation was followed by the suspension in 1959, also until July 1, 1960, of the processing taxes on palm oil, palm kernel oil, etc. (PL-86-37). The suspension of all taxes was extended until July 1, 1963 (PL-86-432) and further continued until July 1, 1966 (PL-87-859).

In early 1965, a Coconut Oil Users Committee made up of a large number of U.S. firms using palm oils, including coconut, sought support of various executive agencies for major changes in import duties of these oils including the repeal of that portion of the duties on products derived from these oils that reflect the former processing taxes. The bill (H.R. 6568) was introduced in the House on March 2?, 1965, by Representative Eugene J. Keogh (Democrat, New York). A similar bill (H.R. 9808) subsequently was introduced by Representative John J. Rhodes (Republican, Arizona). The House Committee on Ways and Means conducted an executive session and public hearings. The United States Department of Agriculture (USDA) was represented at hearings. On October 18, 1965, the House adopted the Ways and Means Committee bill on voice vote. The Senate Finance Committee subsequently also held hearings where again the views of USDA were presented as favorable to the removal of the processing taxes.

On April 13, 1966, Congress passed PL-89-388, making the suspension of the processing taxes of palm oil permanent.

Appendix - B

Tariff Rate

The legal U.S. duty rate on palm oil is zero or free. However, for purposes of negotiations palm oil is broken down as follows:

TSUS	Description	Duty MFN
176.34	Palm oil imported to be used in the manufacture of iron or steel products, or of tin plate or terne plate	free
	Palm oil, other	3¢/lb.

These are the rates that were bound to Indonesia when the Revised Tariff Schedule came into effect on September 1, 1963. The 3 cents per pound duty on palm oil, other, included the former processing tax. The free rate has been in effect since April 13, 1966. Because the duty on palm oil, other, is bound at 3 cents per pound and not at the presently legal rate of free, legislative action would be required to increase the legal rate to 3 cents per pound. If the rate were raised above 3 cents per pound compensation would be required. On January 1, 1948 palm oil was bound free to the Benelux. This binding became inoperative when the Revised Tariff Rate was adopted since the Benelux was negotiating on behalf of Indonesia. The May 20, 1950 binding of free to Liberia was given up by that country when it withdrew from the GATT on June 13, 1953.

Palm oil duties in the EC-9 and Japan are as follows:

European Community

BTN	Description	Duty		
		Conventional	Autonomous	Preferential
1507D1A1	Crude palm oil for technical or industrial uses.	4%	5%	Yaounde, AOCT & Lomé, free
1507D2A1	Crude palm oil other than for technical or industrial uses.	9% Temporary: 6% (indefinite)	9%	Yaounde, AOCT & Lomé free
1507D2A2	Other than Crude palm oil	14%	14%	Yaounde, AOCT & Lomé, free

Note: The EC import duty applicable to major palm oil exporters would be the conventional duty rate.

JAPAN

BTN	Description	Duty		
		MFN	General	Preferential
150761	Palm oil, Crude, Refined or Purified	8%	10%	GSP: 4%

Malaysian Export Duties and Surcharges on Palm Oil

The Malaysian export duty on palm oil as of October 1975 was U.S. $62.31 per metric ton, nearly 50 percent below the June export duty of $122.30 per ton. Similarly, the export surcharge on palm oil fell to $7.15 per ton in October from $10.37 in June. These changes represent the increasing competitiveness of palm oil in world markets, since Malaysian export taxes are tied to current world prices, which declined more or less consistently during 1975.

Malaysian palm oil: Export duties and surcharges - 1975 (Jun.-Oct.)
(In U. S. dollars)

1975	U.S. dollars per Ringgit	Duty	Surcharge	Total charges
June	.4200	122.30	10.37	132.67
July	.4345	121.36	10.07	131.43
August	.3979	69.44	7.60	77.04
September	.3932	64.56	7.31	71.87
October	.3893	62.31	7.15	69.46
November	.3892	1/	1/	1/
December	.3866	1/	1/	1/

1/ Not available.

Appendix - C

U.S. Government Contributions to International Financial Agencies Supporting Palm Oil Development Projects

Relevant Agencies: IBRD (International Bank for Reconstruction and Development), ADB (Asian Development Bank), IDB (Inter-American Development Bank) 1/

Money contributed by the United States to international financial agencies supporting palm oil production becomes part of a subscription capital base for each agency. The base has two parts: paid-in capital and callable capital (the amount a member must contribute in case of default). The bulk of funds actually loaned (90 percent) originates in private capital markets, acquired through agency bond issues and organized joint-in-several loans.

The ratio of U.S. paid-in capital to these agencies' total approved loans does not give an accurate indication of how many U.S. dollars are actually involved in overseas palm oil development projects. Two factors make such an association inappropriate: (1) Which projects use U.S. Government dollars cannot be pinpointed; paid-in dollars from all contributing countries are pooled together for distribution; and (2) total U.S. paid-in dollars have been donated continuously since 1944, rendering futile any effort to connect those dollars with palm oil projects -- all of which have been initiated since 1965.

A more valid relationship can be established between total callable capital and total approved loans. These callable funds, though not directly paid in, are that part of the capital base which may be "called up" should an agency default on a bond. Growing in increments of a 1 to 2 percent annually, callable capital provides these agencies with a credit worthiness that enhances their bargaining positions when entering private bond markets.

	IBRD 2/	ADB 3/	IDB 3/
Total approved loans / Total callable capital	22.32 4/ / 27.74 (80.5%)	1,432.05 / 1,838.16 (77.9%)	3.33 / 4.98 (66.9%)

The total of loans granted stays close to the callable capital base.

1/ The United States is not a subscribing member of the African Development Bank, European Development Fund, or European Investment Bank.

2/ As of June 30, 1975

3/ As of December 31, 1974

4/ Million US dollars.

The link between private capital solicited by the agencies -- some of which is used for palm oil loans -- and the dependability of the agencies (due in part to the support of U.S. callable capital) must be considered.

	IBRD	ADB	IDB
U.S. share of Total callable capital / Total callable capital	$\frac{7.03}{27.74}$ [4/] (25.3%)	$\frac{120.64}{1,836.16}$ (6.5%)	$\frac{2.05}{4.98}$ (41.2%)

U. S. subscribed dollars (not paid in) constitute an appreciable amount of each agency's callable base; in two cases the percentage is significant. (The Asian Development Bank loans are only 6 percent of the total palm oil loan funds). Therefore, since the size of an agency's callable capital base lends credit worthiness to its bid for private funds, whatever success these agencies achieve in marketing their bonds to acquire loanable funds can be partially ascribed, by inference, to the large share of U.S. money pledged to their callable capital bases.

Assuming the removal in part or whole of this U.S. contribution to capital funds, the precise effect on future palm oil loans cannot be quantified. The credit of these agencies might be damaged by such a removal; and private markets would most likely purchase fewer bonds, thereby providing fewer dollars for all prospective loans, not merely palm oil projects.

But the presence in these agencies of a capital base contributed in part by the United States, offers groundwork for exerting justifiable U.S. concern that those loans be decreased or redirected, which promote palm oil production in such volume that their long-run effects prove injurious to the foreign and domestic marketing of U.S. vegetable oils.

Fig. 1. Estimated Palm Oil Production from International Agency Loans, as Share of World Production of Palm Oil, 1970-1975 with 1980 Projections
(1,000 MT)

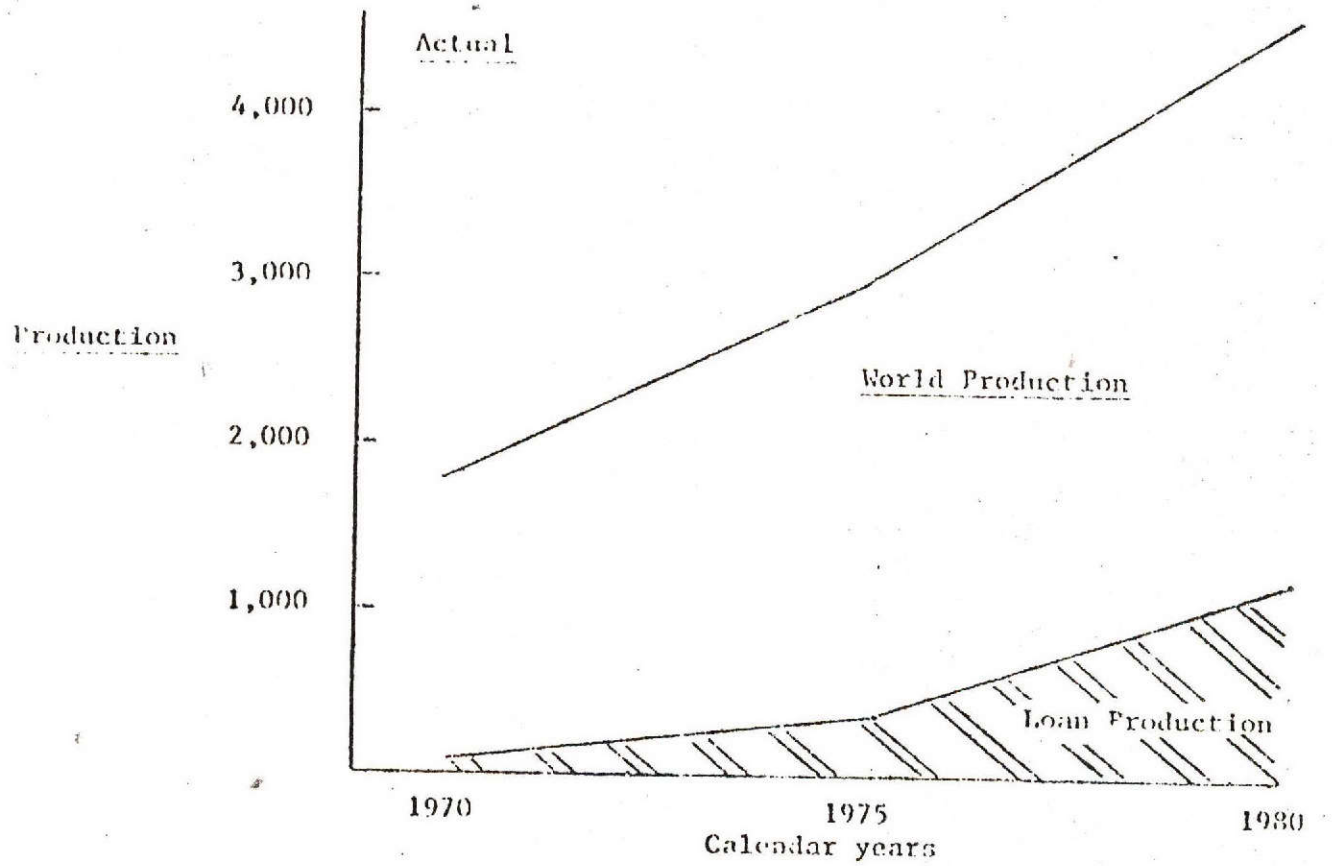


Fig. 2. Estimated Palm Oil Production from International Agency Loans, as Share of World Production of Palm Oil, 1970-1975 with 1980 Projections
(Percentage)

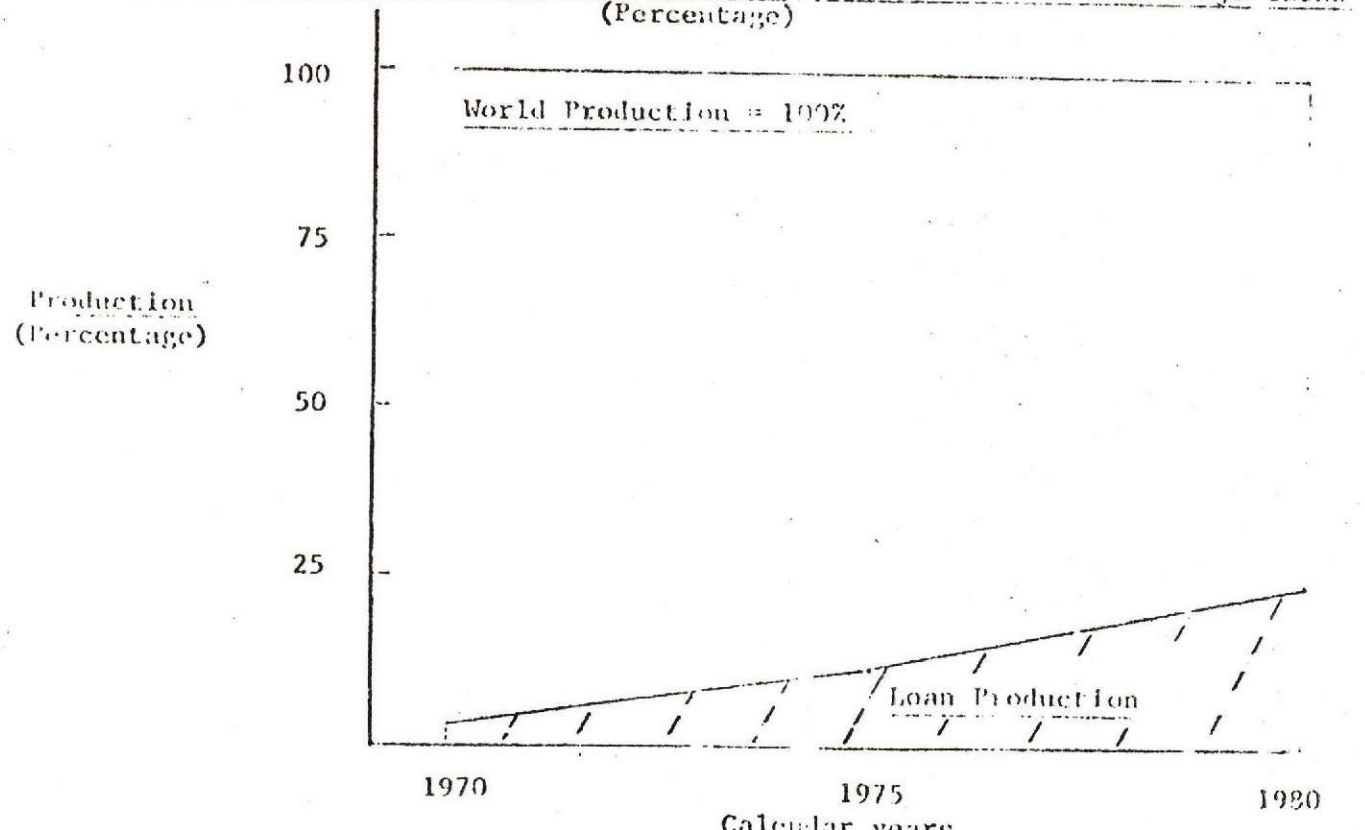


Fig. 3. Growth in Palm Oil Production from International Agency Loans, as Share in World Production of Palm Oil, 1965-1975 with 1975-1980 Projection (1,000 MT)

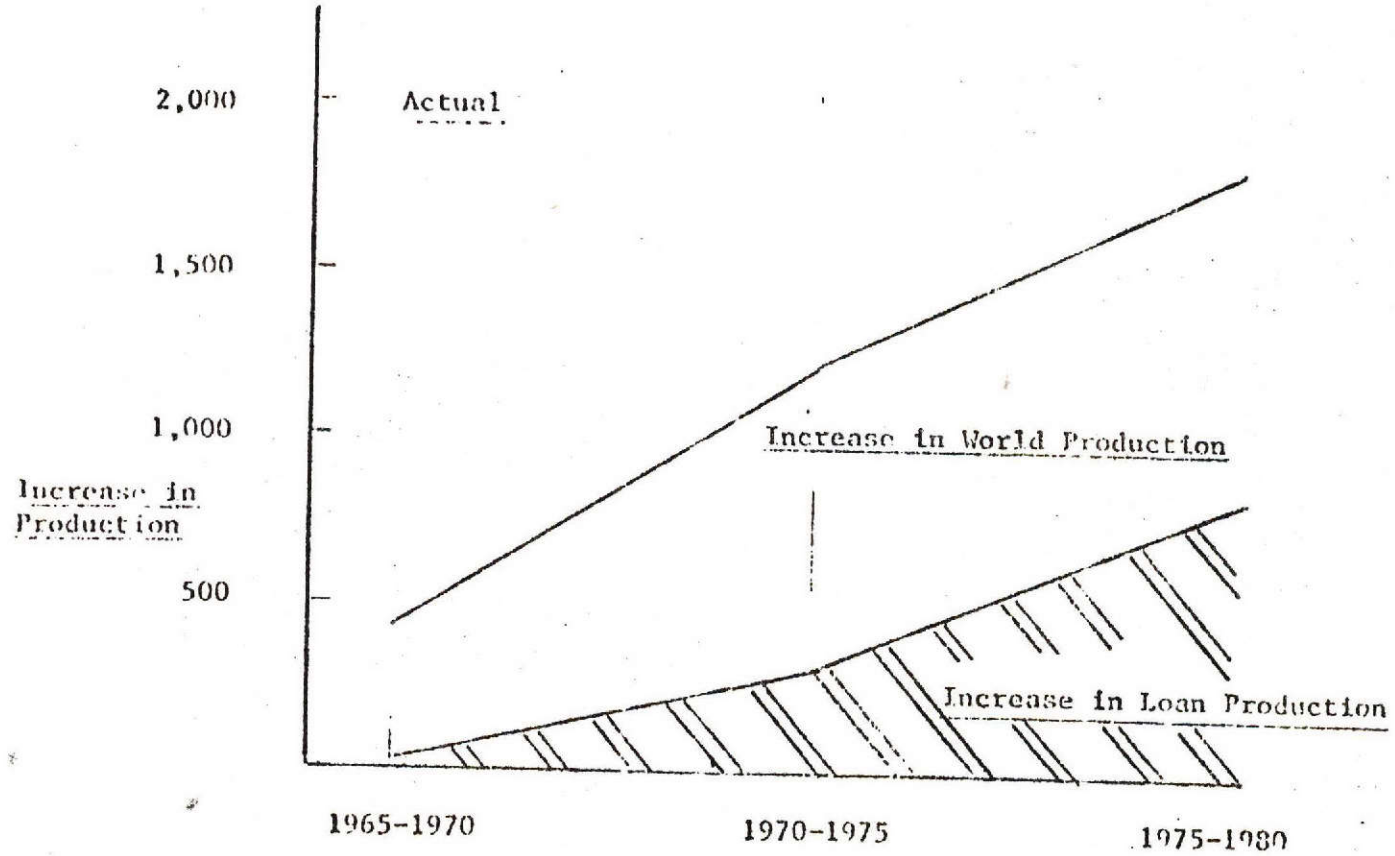


Fig. 4. Growth in Palm Oil Production from International Agency Loans, as Share of Growth in World Production of Palm Oil, 1965-1975 with 1975-1980 Projection

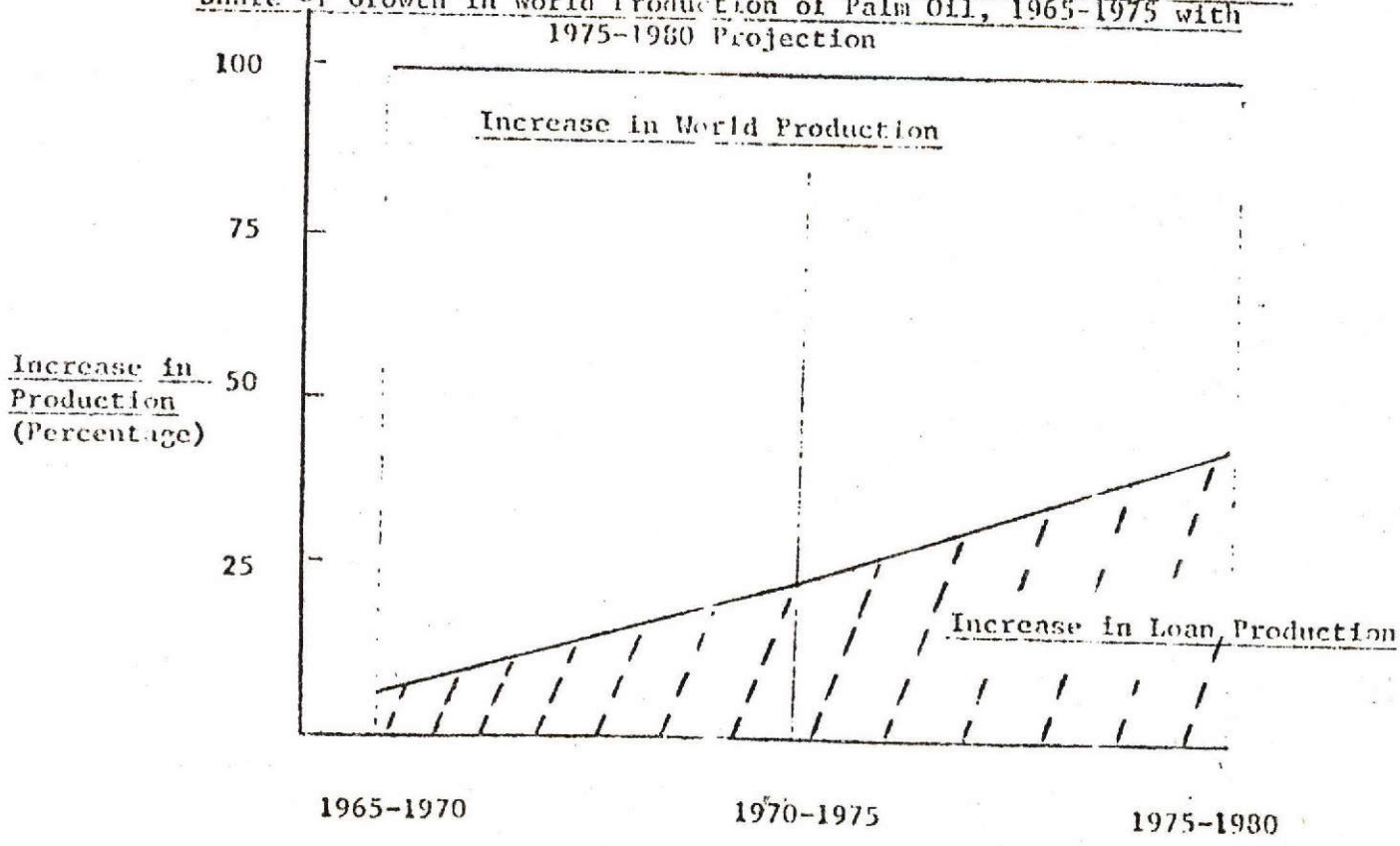


Fig.5. U.S. Palm Oil Imports: Imports from Malaysia as Part of Total Palm Oil Imports, 1965-1975 1/

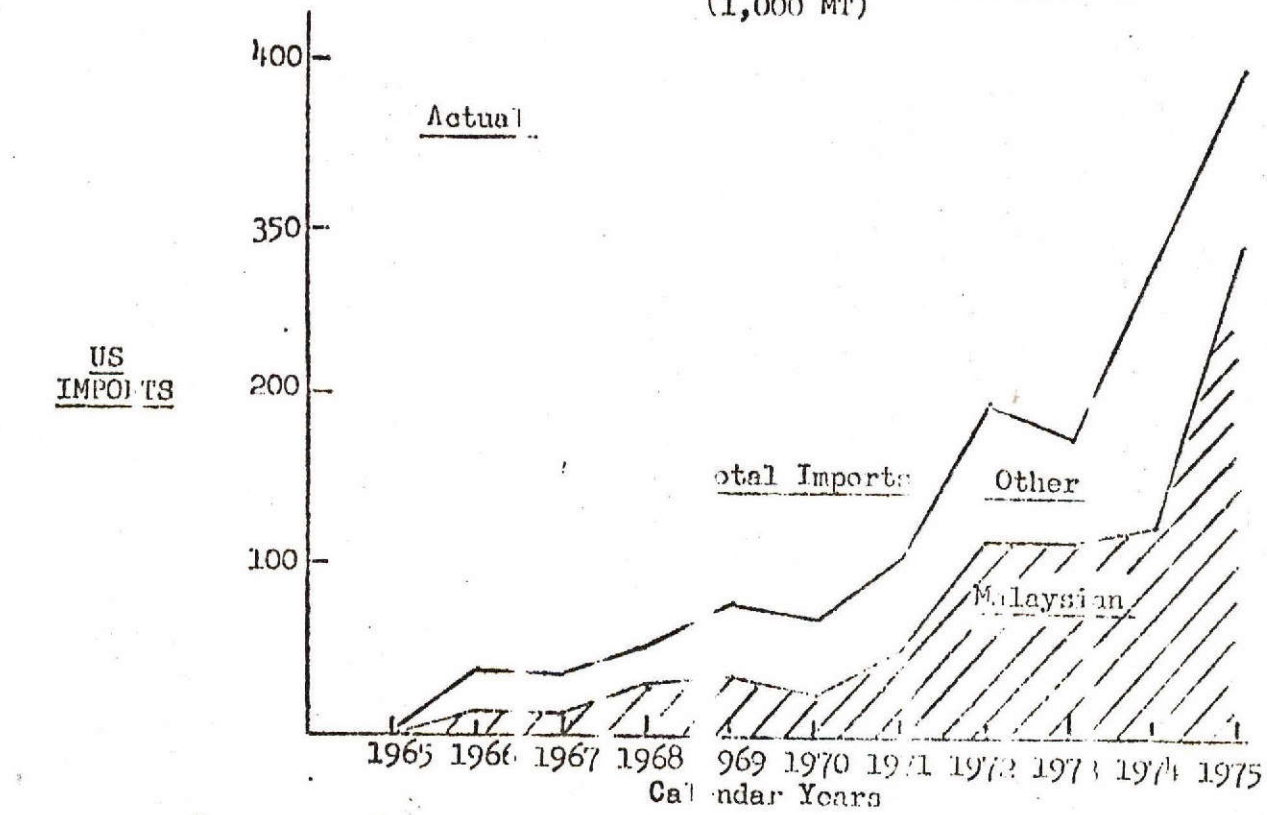
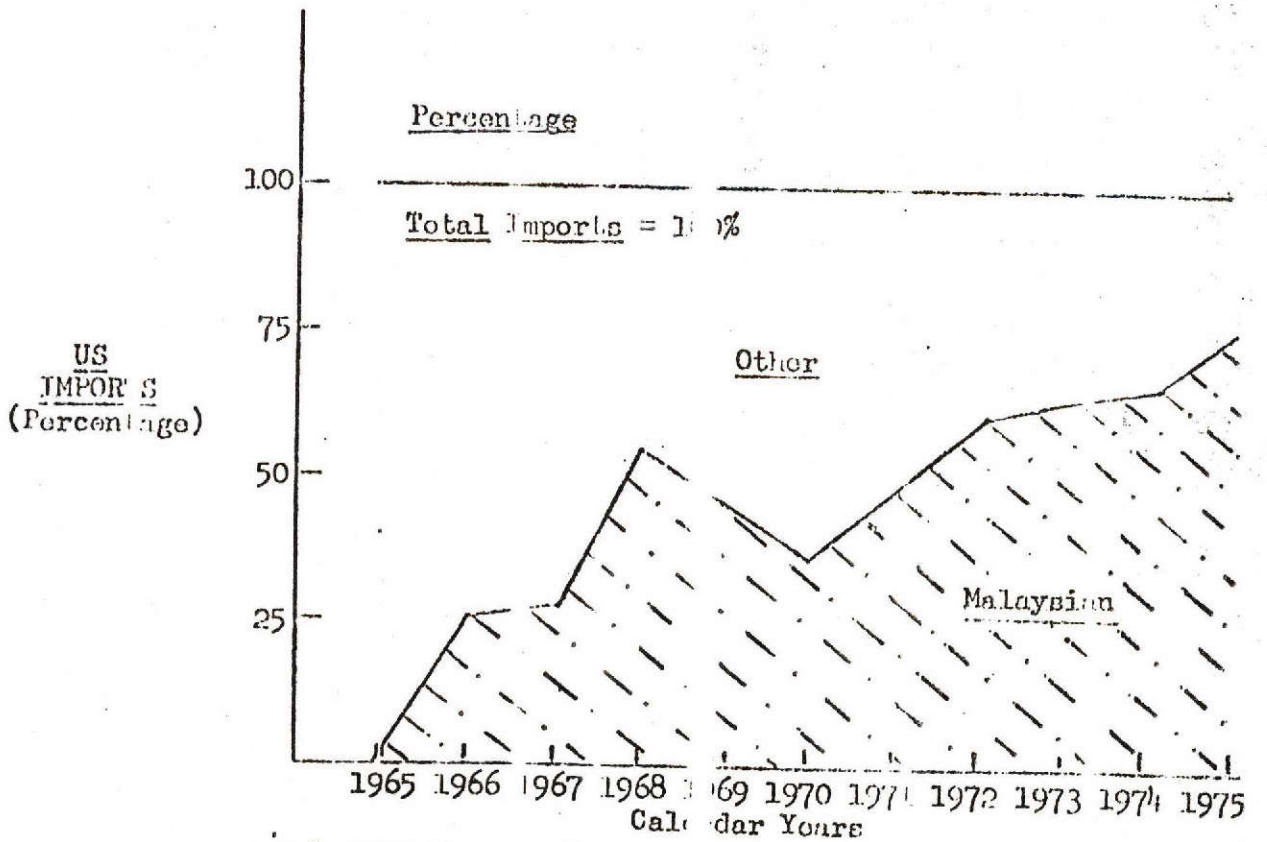


Fig.6. U.S. Palm Oil Imports: Imports from Malaysia as Part of Total Palm Oil Imports, 1965-1975 1/



1/ 1975 Import figures are estimated

Fig.7. Proportion of Palm Oil Consumption for U.S., E.C., and Other, 1970-76 with 1980 projection

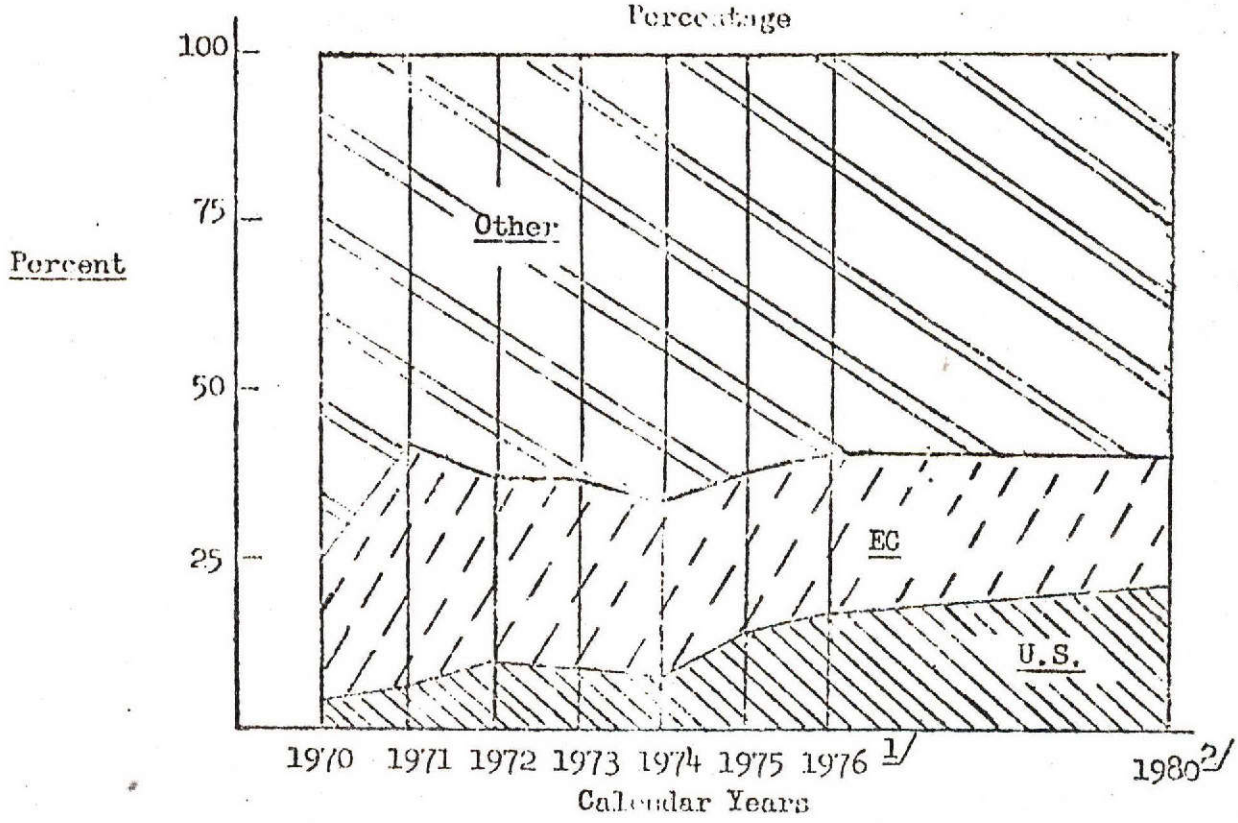
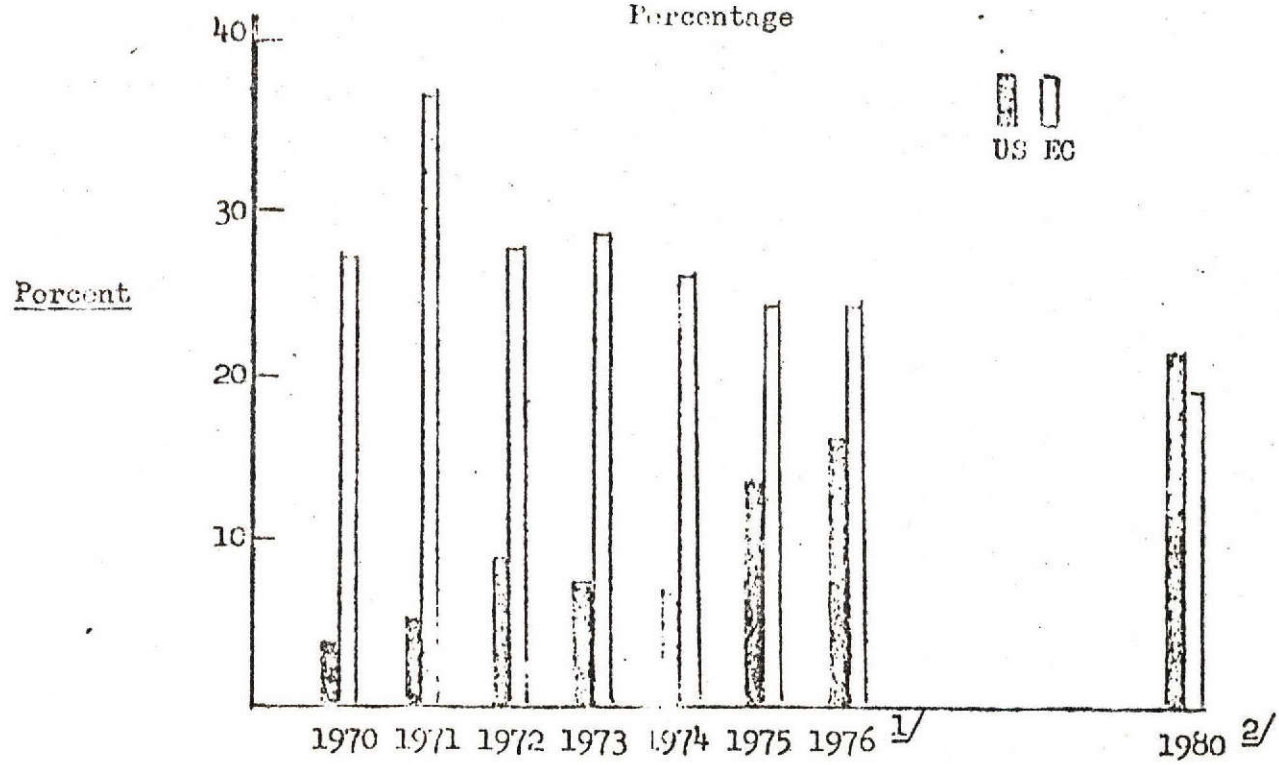


Fig.8. Proportion of Palm Oil Consumption for U.S. and E.C., 1970-76 with 1980 Projection



1/ Forecast 2/ Projection