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A DESCRIPTION OF THE MARKET STRUCTURE AND AGRICULTURAL POLICIES IN FIVE REGIONAL OILSEED AND OILSEED PRODUCT MARKETS

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Preface

The purpose of this paper is to present structural and institutional information, as well as some data, on five important regions within the world oilseed and products market. This information is seen as useful background for researchers wishing to specify quantitative models of the world oilseed market as well as a handy reference for material that is widely scattered in the literature.

Most of the information in this report was collected as part of Dr. Griffith's thesis research which was completed in 1979. While some updating of data and policy changes was undertaken in November 1980 most of the material refers to the industry as it existed prior to 1979.

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CHAPTER 1

A SUMMARY OF THE MARKET STRUCTURE AND AGRICULTURAL POLICIES IN FIVE REGIONAL OILSEED AND OILSEED PRODUCT MARKETS

1.1 Background

The world oilseed market is very complex, consisting of a large number of oilseeds, each influenced by its own specific technical and economic factors as well as interrelationships with other oilseeds. The specification of quantitative models of world or regional markets requires a thorough understanding of the structural and institutional factors influencing behaviour in these markets. An individual wishing to gain such an understanding of the world oilseed market can obtain a number of good descriptive studies, but most deal with either the market in a single country or region, or the market for a single oilseed. Some of the best studies are those by Houck, Ryan and Subotnik (1972) for the United States (U.S.); Parris and Ritson (1977) for the European Community (EC); Perkins (1976), Rigaux (1976), and Meilke, Young and Miller (1980) for Canada; Williams (1977), and Thompson (1978) for Brazil; and Moe and Mohtadi (1971) for the less developed countries. Thus, while comprehensive reviews of world markets are available for other agricultural products (Hillman, 1978) and for manufactured products (Olechowski and Sampson, 1980), no such reviews have been done for the world oilseed market.

The aim of this paper is to present structural and institutional information and some data on the world oilseed market. The provision of this information is seen as a valuable resource which researchers in this area can use. Much of the information currently available about the oilseed economies of Canada, the U.S., Brazil, Japan and the EC, is summarized and reviewed. As such, liberal use is made of the information, data and ideas presented in the publications listed above, as well as in other sources listed in the bibliography.

This review grew out of study of the world soybean, rapeseed and product markets (Griffith, 1979; Griffith and Meilke, 1980a, 1980b). For this reason rapeseed and soybeans are emphasized, but, nonetheless considerable information is presented on other oilseed products, consumed and produced, in the five regions reviewed. The five regions include the United States and Brazil which are the world's largest soybean and products exporters; Japan and the EC which are the world's largest net importers of oilseeds and products;[1] and, Canada which is the largest exporter of rapeseed. In addition, the oilseed sector is of considerable importance within the domestic agricultural economy of each of these regions. Since information on the U.S. and Canadian oilseed markets is perhaps more readily available than for the other regions, the discussion is more detailed for Japan, the EC and Brazil.

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[1] In this bulletin the EC is taken to mean the nine member countries (Belgium, Denmark, France, Ireland, Italy, Luxemburg, Netherlands, United Kingdom and West Germany) at the time of writing.

1.2 Objectives

The objectives of this study are:

1) to provide information on the market structure of the oilseed economies of Canada, Brazil, EC, Japan and the U.S; and,

2) to provide information on the agricultural policies which influence the consumption, production, trade and pricing of oilseeds and oilseed products in Canada, Brazil, EC, Japan and the U.S.

1.3 Organization of the Study

The remainder of Chapter 1 presents a brief overview of the world oilseed economy, while Chapter's 2 through 6 contain detailed discussions of the oilseed markets in each region. Chapter 2 deals with Canada, Chapter 3 Japan, Chapter 4 the EC, Chapter 5 the U.S. and Chapter 6 Brazil. The information in Chapter's 2 through 6 is fully sourced and referenced, thus no references are given in the following summary.

1.4 Oilseed Production

Rapeseed is produced in Canada, Japan and the EC, while soybeans are produced in significant quantities in all regions except the EC. In all cases, though, the particular oilseed of concern is part of a much larger oilseed production sector. For example, in Canada flaxseed and sunflowerseed are major oilseed crops; in the U.S., peanuts, cotton, flaxseed and sunflowerseed are grown in significant quantities; Japan also produces peanuts; the EC also produces olives, flaxseed and sunflowerseed; and in Brazil, significant though declining, quantities of peanuts and cotton are grown. In many cases then, there is sufficient flexibility to allow production substitutability within the oilseed crops, as well as between oilseeds, cereals, forage crops, and fruits and vegetables.

In most regions, the area planted and output of rapeseed and/or soybeans has increased rapidly in the last two decades. For example, Canadian rapeseed production rose from 81,000 MT in 1959/60 to a peak of 2.15 MMT in 1971/72. After levelling off, then falling to 0.84 MMT in 1976/77, production was a record 3.0 MMT in the 1978/79 crop year. EC rapeseed production has risen from 0.36 MMT in 1955/57 to over 1.0 MMT in 1977/78. In the U.S., soybean output has increased dramatically from 8.17 MMT in 1950/51 to a record 61.7 MMT in 1979/80, while in Brazil, the increase was even more spectacular, from 0.21 MMT in 1960/61 to 10.2 MMT in 1978/79. Japan is the only region where oilseed production has declined. Rapeseed output has fallen from 274,000 MT in 1961/62 to 5,000 MT in 1977/78, while soybean production has decreased from 507,000 MT to 112,000 MT over the same period. World production of rapeseed and soybeans, and their oil and meal derivatives, are shown in Table 1.1.

TABLE 1.1: World Production of Rapeseed and Soybeans and Their Oil and Meal Derivatives, 1960 to 1978, 000 MT.

Calendar Year	Oilseed[1]		Vegetable Oil[2]		Oilcake and Meal[2]	
	Rapeseed	Soybeans	Rapeseed	Soybeans	Rapeseed	Soybeans
1960	3800	27300	1105	3295	2146	16182
1961	4000	31100	1190	3290	2204	15834
1962	4200	30700	1220	3850	2320	18038
1963	3906	31659	1060	3810	2436	17806
1964	4035	32354	1095	3880	2265	18362
1965	5252	36507	1450	3905	2501	17668
1966	4863	39080	1420	4585	2422	20767
1967	5367	40735	1690	5000	2827	22708
1968	5522	43998	1830	5220	3007	23691
1969	4997	45188	1480	5855	2415	26611
1970	6689	46774	1920	6085	3019	27347
1971	8065	48477	2505	6265	3894	28146
1972	6755	52340	2595	6845	3987	30293
1973	7132	62311	2493	7590	3841	33300
1974	7230	56969	2475	9540	3744	42140
1975	8436	68938	2713	8330	4195	37360
1976	7520	62117	2857	10180	4595	45729
1977	8313	78460	2271	9131	3912	41030
1978	10557	80532	2987	11214	4199	50458

[1] The calendar year in which the bulk of production occurred. Thus southern hemisphere crops harvested early in the year are combined with northern hemisphere crops harvested later the same year.

[2] Not actual production but potential production based on assumed yields and proportion of the crop available for crush. Relates mainly to crops harvested late the previous year.

Sources: Production Yearbook, FAO.

Foreign Agricultural Circular: Oilseeds and Products, Foreign Agricultural Service, U.S.D.A.

Trade patterns have tended to reflect the trends in production. Canada, and Brazil and the U.S., export rapeseed and soybeans, respectively; Japan is an importer of both, while the EC is an importer of soybeans and a net importer of rapeseed. Since 1970, Canada has achieved a share of about 60 percent of world rapeseed exports, while Japan imports about 70 percent of commercially traded rapeseed. The U.S. and Brazil have soybean export shares of about 80 and 11 percent respectively, while the EC and Japan import about 47 and 19 percent respectively of world soybean imports. World exports of rapeseed and soybeans, and their oil and meal derivatives, are shown in Table 1.2.

1.5 Oilseed Crushing

The oilseed crushing industries in the various regions differ considerably with respect to location, organization, and purchasing behaviour.

In general, it is cheaper to transport raw materials to a crushing plant than it is to transport equivalent amounts of output from the plant to their respective markets. Consequently, rapeseed crushers should locate near potential markets for the more highly valued oil, while soybean crushers should locate near meal outlets[2]. This location pattern is also heavily influenced by transport costs which reflect historical patterns (U.S.) or are subject to Government regulation (Canada); by deficiencies in transport and other infractructure systems (Brazil); and by government policies in closely related areas (Japan). EC crushers tend to be located at the major ports, a result of their long-term reliance on imported supplies.

Many of the older crushing plants are small, multi-purpose, relatively inefficient family firms which operate with outdated equipment and little working capital. These are especially evident in Japan and Brazil. Newer plants opened since the late 1960's are, however, larger, specialized and efficient, and employ more sophisticated crushing techniques. They are typically highly integrated into further processing, and are usually part of an oligopolistic market structure.

Oilseed purchasing by crushers is either through direct delivery by producers or from grain trading companies. In Canada, some 60 percent of rapeseed received by crushers is directly from producers and 40 percent is from elevators, while in the U.S., the percentages are quite different at 10 and 90 percent, respectively. In both these regions, considerable use is made of the futures markets by crushers and elevator companies. The EC domestic rapeseed crop is sold either under contract or by open selling through brokers. Although producers have favoured contract production, considerable interregional differences are evident.

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[2] Rapeseeds have an oil:meal ratio of about 40:58, while soybeans have a ratio of about 18:80.

TABLE 1.2: World Exports of Rapeseed and Soybeans and Their Oil and Meal Derivatives, 1960 to 1978, 000 MT.

Calendar Year	Oilseed		Vegetable Oil		Oilcake and Meal	
	Rapeseed	Soybean	Rapeseed	Soybean	Rapeseed	Soybean
1960	225	4160	21	622	73	1109
1961	251	3842	15	390	60	1150
1962	380	4573	35	674	58	1647
1963	437	5227	53	643	68	2035
1964	506	6290	45	721	113	2309
1965	684	6975	95	691	175	2801
1966	835	7521	162	513	220	3104
1967	818	8143	194	673	208	3361
1968	967	8756	218	598	200	3726
1969	983	9327	178	668	270	4230
1970	1232	12621	179	1126	230	5371
1971	1866	12282	242	1300	347	6185
1972	1715	13815	339	1113	410	6547
1973	1790	15613	421	1064	372	8116
1974	1391	17186	371	1549	392	9251
1975	1103	16459	356	1363	308	8940
1976	1484	19753	413	1827	414	11348
1977	1546	19996	642	2111	593	11850

Source: Trade Yearbook, FAO.

Imported oilseeds are purchased through import brokers or trading divisions of the crusher's own integrated companies. In Japan, domestically produced oilseeds must be marketed through the regional agricultural co-operative network to qualify for the price support payments, while imported oilseeds are purchased through the Japanese trading conglomerates. Some Brazilian soybean crushers buy directly from producers, but most production destined for the domestic market is handled through the grain marketing co-operatives.

The outputs from crushing are crude vegetable oil and protein meal. The proportioning of these products between domestic and export outlets depends on crush capacity in relation to human and livestock populations, and the number of and substitutability with competing products. Government trade policies also play a large role in determining oil and meal destinations.

Most of the Canadian crush output is sold to domestic edible oil refiners and the feed manufacturing sector. Major commercial export markets for rapeoil, rapemeal and soymeal are Japan and the EC. Large quantities of rapeoil are also shipped to India and Bangladesh as food aid. The percentage of U.S. soyoil supply going into export markets fell from more than 20 percent in the early 1960's to 10 percent in 1974/75-1975/76 then increased again to 20 percent in 1978/79. Historically a large proportion of soyoil exports have been PL480 shipments to the Near East and North Africa. Roughly 25 percent of U.S. soymeal output is exported, with major markets being Western and Eastern Europe, Japan and Canada. Within the past few years, Brazil has become a major force in both the world soyoil and soymeal markets. Brazil changed from being a net importer of soyoil in 1970/71 to an exporter of 0.56 MMT in 1977/78. Soymeal exports rose from 0.580 MMT in 1970/71 to 5.4 MMT in 1977/78, mainly to the EC and Eastern Europe. Brazil soymeal exports have now matched U.S. exports on a world basis and have made substantial inroads into traditional U.S. markets. Japan imports both oil and meal to satisfy domestic requirements, but has on occasion been a net exporter of rapeoil and soyoil. The EC is an importer of meals and a net exporter of rapeoil and soyoil, mainly to neighbouring European and North African countries.

1.6 Vegetable Oil Consumption

On the way from crushers to incorporation into domestically produced end products, crude edible vegetable oil passes through several refining stages depending on particular end uses. Some refining facilities are owned by processing firms and located near their crushing plants. More typically though, refining and manufacturing facilities are integrated, so the crude oil is shipped from crushers for refining elsewhere.

In addition to domestic crude vegetable oil production, large quantities of tropical palm oils and other vegetable oils are imported into each of the major regions. These crude oils are then refined and

blended in various combinations to produce margarine oil, shortening oil and salad oil. Manufacturers use the refined oils to produce margarine, salad and cooking oils, mayonnaise, bakery products, processed products such as confectionaries, and products used in consumption-away-from-home outlets. Small percentages of crude vegetable oils are used for industrial purposes - paints, inks, varnishes, lubricants, soaps and detergents.

The consumption of fats and oils varies markedly between regions. In Canada, the U.S. and the EC, annual per capita consumption of all edible fats and oils is in the range of 20 to 25 kg/head/year, while in Japan and Brazil, the figure is much lower at 12 to 13 kg/head/year. In all cases though, the composition of demand has shifted dramatically away from animal fats towards the edible oils, and even within the edible oils, there has been an increased emphasis on the temperate vegetable oils at the expense of the palm oils. In most regions, the edible vegetable oils account for over 75 percent of total fats and oils consumption. Within the edible oils, there is, of course, considerable potential for substitution between the various types as relative prices and end uses change.

1.7 Protein Meal Consumption

Protein meal which is not destined for export may be moved into livestock feed use in either of two ways. The majority is shipped to feed manufacturing plants for blending into commercially prepared feeds and rations while small quantities of meal flow from crushers directly to farmers, livestock feeders, and custom mixers of farm feeds.

In addition to domestically produced meals, significant quantities of meals are imported by the EC and Japan to satisfy domestic requirements. This is especially true of the higher protein types such as fishmeal, soymeal and peanut meal.

The rapid growth in global oilmeal demand has been determined by the development of intensive livestock industries, the switch to compound feeding, and the usually high income elasticity of demand for meat. Soymeal is the single most important high protein feed concentrate used in animal feeds, accounting for between 70 to 80 percent of all oilmeal consumption in the major livestock producing regions. The pattern of substitutability with other meals and the type of livestock fed, however, differs considerably between regions. For example, in Canada, rapemeal is soymeals closest competitor and protein meal consumption is fairly evenly divided between hogs, poultry and cattle. In the U.S., fishmeal is the second most important protein meal, and poultry and hogs utilize the bulk of concentrate production. Fishmeal and peanut meal are major competitors for soymeal in both Japan and the EC, although rapemeal consumption is increasing rapidly, and hogs are the major outlet in both regions. In the past, most rapemeal in Japan has been used as an organic fertilizer for vegetables, citrus trees and tobacco, but it is being increasingly used in animal feeds. Finally, in Brazil, domestically produced cottonseed and peanut meals are the next most consumed oilmeals and poultry accounts for more than 75 percent of all mixed feed consumption.

1.8 Oilseed Production Support Policies

All regions have well-established guaranteed price programs for rapeseed (Japan, Canada and the EC) and/or soybean production (Japan, Canada, Brazil and the U.S.). The incidence of these policies is shown in Table 1.3.

In both Japan and the EC, rapeseed prices are supported by a system of deficiency payments. The Common Agricultural Policy (CAP) for rapeseed in the EC provides for a deficiency payment to producers equal to the difference between the prevailing world market price and the "target price", which is, in effect, the guaranteed price to producers. In Japan deficiency payments are paid to producers who sell rapeseed and soybeans through the nationwide agricultural co-operatives and dealers' associations. The amount of the deficiency payment equals the difference between the guaranteed price and the farm price. However, the producer price is also fixed by the government on the basis of CIF prices, import charges, and internal transportation and storage costs. Thus, the deficiency payment has tended to be much more stable than if it were based entirely on world market prices.

Both these deficiency payment support policies have been considered successful in achieving domestic policy objectives of raising farm income and returns to resources, stimulating domestic supplies to substitute for imports, and altering the production mix between oilseeds, cereals and other crops. For example, following the U.K. accession to the EC, rapeseed price incentives under the CAP raised the average market price in the U.K. from about ₤50/MT in 1971/72 to about ₤155/MT in 1977/78. Over the same period, U.K. self-sufficiency in rapeseed rose from 10 to 88 percent. In Japan, the largest impact of the deficiency payment programs were on farm incomes, and as early as 1967, almost 70 percent of the value of Japanese agricultural output was affected by price support measures. The effect on rapeseed output was hardly noticeable because of the dominance of the rice support program, but recently specific acreage incentives have been implemented in an attempt to generate greater domestic rapeseed production and so curtail imports. In both these importing regions, the deficiency payment policies lead to farm level prices which are above the prevailing world market prices. Domestic producers are, therefore, both insulated from world market instability and encouraged to produce more than they would if they received the lower world prices.

Price support for soybeans in Brazil, the U.S. and Canada, are accomplished by minimum price guarantees. The price supports are, therefore, in general, below prevailing market prices, and while they do not directly insulate domestic producers from world prices, they do provide a floor to decrease down-side price risk and so stimulate greater output in low price periods than would be the case without the price supports.

In the U.S., the floor price for soybeans is the administratively determined "loan rate". After harvest, producers may sell their beans on the market or place them in storage as collateral for a government

TABLE 1.3: The Incidence and Type of Policies Influencing the Regional Oilseed and Oilseed Product Markets, 1979

Type of Policy	Region				
	Canada	Japan	EC	U.S.	Brazil
Oilseed Price Support					
Deficiency payments		X	X		
Minimum price	X			X	X
Tariffs (MFN rates)[a/]					
Oilseed		0	0		
Soybean oil, crude, edible		17,000 Y/MT	10%		
Rapeseed oil, crude, edible		17,000 Y/MT	10%		
Oil meal		0	0		
Non-Tariff Measures					
Export development	X			X	
Export subsidies				X	X
Export quotas/licences					X
Export taxes					X
Import quotas/licences		X			
Import taxes		X	X		
Import deposits		X	X		
Exchange rates					X
Foreign exchange controls		X			
Supply agreements		X	X	X	
Transport subsidies	X	X			

[a/] Tariffs are only shown for the two major importing regions in the study (Japan and the EC).

Sources: Hillman (1978), information in following Chapters.

loan at the loan rate. If market prices move high enough, farmers sell their stored beans on the open market and pay off the loan at the support rate plus interest. If market prices remain near or below the loan rate, producers may retain the cash loan and consign the beans to the government in full payment of the loan.

The Brazilian minimum farm price program for soybeans is based on intervention purchases. If market prices fall below the minimum price, the government purchases beans at the minimum price. However, as with the U.S. loan rate, these floor prices have typically been set well below prevailing market prices and the government has seldom found it necessary to enter the market. The risk reducing impacts of setting a floor price have, however, stabilized producers' price expectations to some degree.

Soybean prices in Canada are supported by the Federal government at 90 percent of the previous five-year average market price, adjusted for changes in production costs.[3] Since prevailing market prices have been high, no payments have been necessary. Rapeseed is included in a Canadian stabilization program which guarantees that the net cash flow to commercial producers in aggregate will not fall below the average net cash flow in the previous five years.[4] Participation is voluntary and payins are required.

1.9 Tariffs

Tariff levels for oilseeds and oilseed products into major importing regions are typically low or zero for oilseeds and oilmeals, and higher and escalated for vegetable oils (depending on the degree of processing) to protect the domestic crushing and refining industries. For example, in Japan, oilmeals and most oilseeds have free entry, while vegetable oils face a fixed tariff of 17,000 Yen/MT. In the EC, the Common External Tariff (CET) gives free entry to all oilseeds and meals, but a 10 to 15 percent ad valorem tariff is applied on edible oil imports depending on the degree of refining.

Tariff rates have shown considerable variability over time, however, as domestic market conditions have changed. For example, before the general trade liberalization in 1961, Japanese tariffs on agricultural products were low and in many cases were waived since domestic producers were effectively protected by non-tariff measures (discussed in section 1.10). After liberalization, however, this protection was reduced, and tariffs were adjusted upwards. Tariffs on soybeans and rapeseed were increased from 10 to 13 percent and tariffs on most vegetable oils were doubled to 10 percent. Following the Kennedy Round in 1968, all tariffs were changed

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[3] Ontario provides additional price protection for soybeans produced in Ontario.

[4] This program, the Western Grain Stabilization Act, is available only within the Wheat Board area.

to a fixed rate and the soybean tariff lowered to the equivalent of 6 percent ad valorem, although this latter tariff was raised to the rapeseed value in 1971 after rapeseed liberalization. Tariffs on oilseeds and meals were suspended in 1972 and the tariff on crude vegetable oils lowered temporarily by some 10 percent, primarily for balance of payments reasons. Beginning in 1971, Japan announced its intention of implementing a Generalized System of Preferences for LDC's, but the number of oilseed products included was small and the concessions had volume restrictions. This GSP scheme was extended in 1977. The recently announced results of the Tokyo Round show Japan as merely formalizing the "temporary" tariff reductions of 1972.

In the EC, the CET was agreed upon in 1961 but not arrived at until 1967. During this transitional period, the tariff rates for Benelux and Germany were increased and the tariffs for France and Italy were lowered. A similar transition period for the three new member states took place over the period 1973 to 1977. While the original CET rates have remained basically unchanged since 1961, there have been various concessions negotiated over this period. The Yaoundé Conventions of 1963 and 1969, and later the Lomé Conventions of 1975 and 1979 granted concessionary allowances on tariffs and levies to a large number of "Associated" countries, mainly former colonies. Under Lomé, for example, the signatories are granted complete removal of the CET for vegetable oils, the adoption of STABEX (stabilization of export revenues for commodities such as coconut, palm, cottonseed and peanuts and their oil and meal derivatives), and a development aid fund to induce expansion of oilseed production and processing in these countries. The Community also has agreements with the Mediterranean Associates involving olive oil, and a GSP scheme implemented in 1971 which provides a range of tariff concessions for vegetable oil imports from the over 100 countries signing the scheme.

The tariff rates on imports of oilseeds and products are, therefore, quite low and, in general, are declining over time. The concensus is that tariffs have not had such a negative impact on world trade in these products as have non-tariff measures, including domestic price support programs.

1.10 Non-Tariff Measures: Importing Regions

Both Japan and the EC have and continue to implement a wide range of non-tariff measures designed to supplement domestic production and tariff policies in protecting local producers and manufacturers. These policies are shown in Table 1.3.

Since the end of World War II, Japan has used various methods of controlling agricultural imports - import quotas, import licences, state trading, prior import deposits, differential taxes and foreign exchange controls. Many of these measures have been reduced over time. For example, prior to 1961, most agricultural imports were subject to quotas, but during 1961/64, there was a major rationalization and liberalization of this system of import quotas and licences and the associated foreign exchange

restrictions. In the oilseed sector, all oilseed imports except rapeseed and peanuts were placed in the least restrictive import category. All edible vegetable oils and protein meals, though less tightly controlled, were still subject to quota allocation. At the same time, however, many other barriers remained in place, and tariffs on many products were increased to ease domestic adjustments. The remaining quotas on rapeseed, peanuts for oil, rapemeal and soymeal, and most of the edible vegetable oils were removed in 1971. In recent years, Japan has also instituted a number of measures designed to secure import supplies. Those relating to the oilseed sector include bilateral and multilateral supply agreements (soybeans from the U.S.); stockpiling assistance for soybeans; the use of the Livestock Industry Promotion Corporation as the sole importer of butter; and the establishment of diplomatic relations with the People's Republic of China.

The EC has not had an extensive formal system of non-tariff measures like Japan, but it has been more willing to implement discretionary and temporary measures to satisfy short-term policy objectives. For example, in the oilseed sector, the Community regulations provide for the imposition of compensatory taxes on imported oilseeds or oilseed products found to endanger the Community market for the same or a substitute product. These levies have been imposed on Eastern European rapeoil and sunflower oil imports to protect domestic crushing margins. A skim milk powder (SMP) import deposit scheme was implemented during 1976 under which feed compounders had to pay a deposit on imports of oilcake which could only be claimed back after purchases of SMP had been made from the Communities' intervention stocks.

Non-tariff measures existing for competing products also indirectly affect the demand for oilseed products. For example, the CAP and import levy system for cereals and dairy products increase their price and hence stimulate the demand for oilmeals in livestock feeds and vegetable oils in domestic consumption, respectively. Two non-tariff measure proposals currently under consideration are designed to offset these cross-commodity impacts. A proposed tax on vegetable oil consumption would be directed toward reducing the competitive edge of the oilseed sector, stimulating butter demand, and so assisting in remedying the dairy market imbalance. Proposed import restrictions and/or taxes on starch "grain substitutes" (cassava, glutens, brans, etc.) would be directed toward reducing demand for the complementary high protein meals and stimulating demand for Community cereals in livestock rations.

The non-tariff measures applied to oilseeds and oilseed products are generally thought to have had significant negative impacts on world trade, and hence on export demand (such as the export demand for the outputs of the Canadian rapeseed (industry). In recent years, it seems true that while tariff barriers were being dismantled, non-tariff measures were taking their place.

1.11 Non-Tariff Measures: Exporting Regions

As shown in Table 1.3, all three of the major exporting regions considered in this bulletin implement programs to stimulate or otherwise influence export performance in the oilseed sector.

The direct efforts of the Canadian government are a continuing program of supporting specific export market development activities. The main effects of the Oilseed Marketing Incentive Program are toward improved uses and processing of existing products. Aspects include overseas rapeseed seminars, incoming oilseed missions, expanded export credit and financing of improvements in oilseed handling and transportation facilities. The Rapeseed Utilization Program, administered by the Canola Council of Canada, specifically aims to open new domestic and export markets for rapeseed and products.

Indirectly there are two major issues which modify the export performance of the Canadian rapeseed industry. The Crows Nest rail freight agreement encourages the export of rapeseed instead of oil and meal, and thus the benefits of value added crushing and manufacturing are transferred to importing regions. Rates on rapeseed products have been effectively frozen at 1974 levels and the government assisting domestic crushers by paying the difference between the frozen rates and any new, higher rates. Second, the operations of the Canadian Wheat Board in controlling rail cars and elevator space for wheat, oats and barley often place a severe constraint on rapeseed exports. Foreshadowed improvements in transportation, handling and storage facilities should do much to alleviate this problem.

In the U.S., the programs influencing oilseed and oilseed product exports are more obvious. The soybean, peanut and cotton programs all have (or had) provisions for export subsidies. These subsidies relating to soyoil and cottonseed oils are associated with the PL480 food-aid programs sponsored by the U.S. government, where concessional shipments are made to food deficient friendly countries. The aims of the PL480 program are to advance living standards and to upgrade diets in the recipient countries. However, the shipments have also been crucial in keeping the commercial supplies of these oils in line with commercial demand at reasonably stable prices, and in expanding the demand for U.S. vegetable oils. The PL480 program for these oils can, therefore, be viewed as a price support mechanism for vegetable oils and a valuable adjunct to the loan rate programs for the oilseeds. The U.S. has also entered into long term supply agreements with some importers, including Japan, for soybeans.

The most direct and effective set of policies influencing export performance in the regions studied are in Brazil. These policies are generally recognized as being the most important reason for Brazil's recent emergence as a major force in the world markets for soybeans, oil and meal. Until the 1964 revolution, Brazil had a very restrictive policy

toward exports. With domestic price ceilings on soyoil and soymeal, export quotas were required to divert supplies to the domestic market and prevent oil and meal prices from moving through the ceiling. Exports of soybeans were controlled to ensure a positive crushing margin to the industry. Also, during this period the exchange rate was overvalued and adjusted only with a lag to compensate for the country's inflation. While this policy exploited the inelastic export demand for coffee, it also hindered the growth of exports of soybeans and products.

Beginning in 1964, Brazil's foreign trade policy gradually shifted to one of export promotion. Licensing requirements and quotas on most goods were eliminated, export subsidies were introduced, and efforts were made to move the exchange rate closer to the equilibrium level. Soybean production and crush capacity began to expand, and soymeal exports increased rapidly. However, to maintain domestic price ceilings, soyoil exports were essentially prohibited.

From 1972 onwards, exports of soymeal, soybeans and later soyoil were alternatively curtailed and stimulated by a complex array of exchange rate adjustments, export quotas, value-added taxes, export licences, export embargoes, tax credits, tax exemptions and subsidized export finance. The overall objective was to stimulate expansion of the domestic crushing industry and to export oil and meal instead of beans. The evidence is that the industry responded to the incentives and in 1977, Brazil exported more soymeal than the U.S. At certain times, however, the taxes and subsidies were adjusted to retain oil and meal on the domestic market to maintain domestic price ceilings and to satisfy the demands of the mixed feed industry in particular.

CHAPTER 2

THE CANADIAN OILSEED AND OILSEED PRODUCT MARKET - DESCRIPTION AND POLICIES[5]

2.1 Oilseed Production

Canada produces four major oilseed crops: rapeseed, soybeans, flaxseed, and sunflowerseed.[6] In the 1978-79 crop year, these four oilseeds utilized an area of 3.7 million ha. and produced a seed output of 4.7 MMT with an estimated farm value of 860 mil. dol.

Rapeseed which is the most important of Canada's oilseed crops, was introduced into Western Canada in the 1940's as a wartime measure to satisfy a need for marine engine lubricants. There were about 75 growers in Saskatchewan in 1944 with about 1950 ha. under production. Since the early 1960's, rapeseed production has increased rapidly, and by 1969-70, output was some 400 percent above the 1940's level, ranking Canada third in world rapeseed production and first in rapeseed exports. Rapeseed has, therefore, commonly been referred to as Canada's "Cinderella" crop. Much of rapeseed's adaptability is due to the choice of varieties. Polish stock may be used in areas where the growing season is shorter or where seeding is delayed; while Argentine varieties thrive where the growing season is long and where seeding can be done early. Both varieties are similar as far as utilization is concerned and no distinction is made in marketing. There are about 50,000 rapeseed producers in Canada, with 85 to 90 percent of output coming from Alberta and Saskatchewan. Rapeseed competes with barley, other cereals and other oilseeds for land use in the Prairie provinces. Thus, fluctuations in the prices of cereals and other oilseed crops have a large and significant impact on the Canadian rapeseed market (Lowe and Petrie, 1979; Colman, 1979).

Production reached 2.1 MMT in 1971-72, and after falling to 0.8 MMT in 1976-77, is estimated to be a record 3.5 MMT, in the 1978-79 crop year. Over the past five years, rapeseed has contributed, on average, 7 to 10 percent of the total farm income in Canada derived from field crops. In the past two decades, the distribution of annual supplies has been such that an average 70 percent was exported (Table 2.1). Record exports of 1.7 MMT were achieved in 1978/79, with balance of

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[5] Much of the material in this section is adapted from the surveys of Perkins (1976), Rigaux (1976), and Agriculture Canada (1977).

[6] Small quantities of mustardseed are also grown in Western Canada but this crop is not an important source of oil and meal. Almost all mustardseed produced in Canada is exported for use in manufactured mustard products (Al-Zand, 1974). Small quantities of peanuts are now being grown in Ontario but for edible purposes.

TABLE 2.1: Canadian Rapeseed Supply and Disposition, 1958-59 to 1978-79, 000 MT.

Crop Year Beginning Aug. 1	Supply			Disappearance			
	Beginning Stock	Production	Total Supply	Exports	Crush	Feed Seed Waste	Ending Stock
1958-59	6.3	176.1	182.4	129.7	17.3	29.7	5.6
1959-60	5.6	80.7	86.3	65.3	5.1	12.9	3.0
1960-61	3.0	252.2	255.2	183.5	21.8	39.0	10.9
1961-62	10.9	254.5	265.4	156.9	29.8	29.8	48.9
1962-63	48.9	132.6	181.8	129.5	36.7	3.9	11.4
1963-64	11.4	189.6	201.0	120.4	35.7	24.9	20.0
1964-65	20.0	300.1	320.1	210.4	55.7	24.0	30.0
1965-66	30.0	512.6	542.6	309.2	85.0	73.9	74.5
1966-67	74.5	585.1	659.3	313.4	113.0	98.1	135.1
1967-68	135.1	560.2	695.3	279.2	117.0	79.4	219.7
1968-69	219.7	440.0	659.7	324.6	157.3	58.3	119.5
1969-70	119.5	757.5	877.0	503.8	176.2	113.5	83.5
1970-71	83.5	1,637.5	1,721.0	1,061.7	194.8	214.4	250.1
1971-72	250.1	2,154.6	2,404.7	966.2	273.3	186.8	978.4
1972-73	978.4	1,299.6	2,278.0	1,226.0	353.2	229.8	469.0
1973-74	469.0	1,206.6	1,675.6	889.0	334.4	171.2	281.0
1974-75	281.0	1,164.0	1,445.0	593.0	276.0	176.1	399.9
1975-76	399.9	1,748.6	2,148.5	683.0	347.2	76.8	1,041.5
1976-77	1,041.5	836.9	1,878.4	1,019.3	549.7	110.4	199.0
1977-78	199.0	1,973.1	2,172.1	1,013.6	630.3	203.2	325.0
1978-79	325.0	3,497.1	3,822.1	1,720.3	725.1	388.1	988.6

Source: Canada Grains Council, Statistical Handbook 79. Winnipeg.

Statistics Canada, Grain Trade of Canada, various issues, Ottawa.

payments earnings of approximately 500 mil. dol. Major export markets for Canadian rapeseed are Japan, the EC, India and Bangladesh. These three regions accounted for 94 percent of exports during 1967-76, with Japan's share growing from 73 percent in 1967-69 to 82 percent in 1974-76. India's and Bangladesh's share have grown from zero to four percent, and the EC's share has remained around twelve percent. Minor and/or irregular importers are Taiwan, Algeria, Morocco and Eastern Europe. Since 1970, Canada's share of world rapeseed exports has averaged 60 percent of world rapeseed exports, while Japan imports about 70 percent of commercially traded rapeseed. Other major rapeseed exporters are Sweden, Poland, Hungary and the EC (mainly to other member nations).

Canadian soybean area is concentrated in Southern Ontario (which has sufficient heat units) and competes primarily with corn and cereals for land availability. From small plantings in the 1920's, production expanded rapidly until, by the early 1950's, soybeans became a major cash crop. Area planted rose to 130,000 ha. in 1969-70 and to 285,000 ha. in 1978-79 (Littlejohns et. al., 1978; Meilke et. al., 1980).

The bulk of the soybean crop is crushed in Canada for oil and meal. However, small amounts of fullfat soybeans are used in the production of food for human consumption, and exported for food purposes to the expanding markets of Japan, Hong Kong and Singapore (Boulton, 1977). The former dominant U.K. export market has declined rapidly in recent years.

Flaxseed area in 1978-79 was 526,000 ha., down from 1,325,000 ha. in 1970-71, while 1978-79 production of .571 MMT is down from the record output of .650 MMT in the previous year. The total farm value of Canadian flaxseed has averaged around 100 mil. dol. in recent years. Domestic demand is fairly stable at .12 MMT, and in the recent past, .35 to .55 MMT have been exported. Major markets have been the EC, Japan, Poland and Czechoslovakia. However, with exports facing strong competition from Argentinian and Indian supplies, exports fell to .26 MMT in 1977-78. Over the period 1969 to 1978, Canada has been the dominant, though declining, producer and exporter of flaxseed with about 20 percent of world output. Other major and expanding producers are India, U.S.S.R., U.S. and Argentina.

Flaxseed is crushed to produce linseed oil and linseed meal. Linseed oil is an industrial, drying oil used mainly in paint and varnish manufacture. Typically, 30 percent of Canadian linseed oil output is exported, with the U.S. being the largest market. Linseed meal is in strong demand as a livestock protein supplement and the majority is consumed domestically.

The 1978-79 sunflowerseed area was 91,500 ha. compared with 96,900 ha. in 1971-72, and the 1964-74 average of around 40,000 ha. Production in 1978-79 was 120,200 MT, up from 77,000 MT in 1971-72. Sunflowerseed is produced under contract by about 2,000 growers, mostly in Manitoba.

Prices are, however, linked to the prices of other oilseeds, particularly rapeseed, since they are both primarily oil-bearing seeds. In 1966-67, about 65 percent of output was of birdseed - confectionary varieties and most of this was exported to the U.S. and EC. The remaining third was crushed in Canada for oil and meal. Now about 95 percent of output is used for domestic crushing, although there are small export outlets in Western and Eastern Europe. Oil and meal production is all consumed domestically, and there are occasional imports of U.S. sunflower oil to offset domestic deficiencies. Canada produces only 0.4 percent of world production, with the U.S.S.R. (60 percent) dominating and Argentina, U.S. and Romania being other large producers.

2.2 Oilseed Crushing

The oilseed crushing plants presently operating in Canada are located near or within the major oilseed producing regions. Six plants which crush mainly rapeseed are located in the Prairies and two plants which crush only soybeans are situated on the Lake Ontario waterfront while a new integrated crushing facility opened in Windsor, Ontario late in 1979 (Jaeger, 1979).

Rapeseed purchasing by crushers is either through direct delivery by producers or from grain companies. Until 1962, the rapeseed crop was handled in part by elevator compaies for brokerage firms, and partly grown under contract. With the establishment of the Winnipeg Grain Exchange (WGE) in 1963, prices have been determined on the futures market, and, although there is still some rapeseed grown under contract to crushers, producers have the option of selling to a number of purchasers.

For 1974-75, Rigaux (1976, p. 31) estimated that 62 percent of rapeseed received by crushers was delivered directly from producers and 38 percent was by carlot receipts from elevators. Crushers can affort to pay premiums and/or trucking allowances for producer deliveries because the freight on elevator purchases is avoided. However, the price crushers must meet, for contracts or open market purchases, is the price paid by country elevators. This price is the futures price for rapeseed in the month of potential delivery to buyers, minus handling charges.[7] Since a large portion of Canadian rapeseed is exported, the futures price, and hence the price elevators and crushers pay to producers, is largely determined by world market conditions. Elevator companies usually hedge their purchases of rapeseed from producers by selling the same quantity on the futures market and later buying back when the seed is sold to crushers or exporters.

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[7] This price was formerly known as the "Street Price" and was determined twice daily by a committee of elevator representatives. Since mid-1976 the elevator companies have published daily buy quotas (e.g. U.G.G.'s Schedule 6 price) which the crushers must match (C. Scott, personal communication). See Martin and Storey (1975) for an analysis of the rapeseed futures market, and its effect on farm prices.

Once off the farm, soybeans come under the jurisdiction of the Ontario Soybean Growers Marketing Board. Although the Board does not engage in actual handling or marketing of beans, the crop is sold under terms and conditions negotiated annually between the Board and dealers and crushers (Jaeger, 1977). Soybean crushers purchase Ontario soybeans from about 120 local dealers who operate country elevators and storage facilities, as well as directly from growers in which case the dealer margin is shared. In recent years, direct grower shipments have accounted for less than 27,000 MT annually.

Imports of duty-free U.S. beans are generally about half the quantity crushed, and this volume greatly facilitates crusher buying and processing operations.[8] The landed price of U.S. beans in Toronto is a major determinant of the Chatham price of Ontario beans along with the cost of transfer from Chatham, discounts for variable quality (U.S. beans are quality graded), and possible discounts for small lot purchases. In the event that crushers are unable to import U.S. beans, the price is determined by the Canadian wholesale price for soyoil and soymeal.

As mentioned above, Canadian soybean crush capacity greatly exceeds domestic production. The reason for the expansion in capacity was the British Preferential Tariff faced by exports of Canadian soyoil and meal into the U.K. before it joined the EC, while U.S. soyoil and meal exports were charged the higher Most Favoured Nation tariff. Thus, it was more profitable for some U.S. soybeans to be crushed in Canada, and the products, now classified as Canadian, shipped to the U.K.

Crusher purchases of beans are usually matched with a corresponding hedging transaction on the Chicago futures market. Hedging allows the crushers to guard against major losses from price declines on his inventory of unprocessed beans and unsold products, i.e., the crushing margin can be locked in. This is done by buying beans on the futures market and simultaneously selling the equivalent amounts of oil and meal. Later, as actual beans are bought, the long hedges on beans are sold, and after crushing, the short hedges on oil and meal are bought back as the actual products are sold. The time chosen for locking in the margin often corresponds with negotiating the forward supply of oil to a refiner. Crushers are unlikely to accept a forward commitment for oil unless they can hedge their associated bean requirements and meal output at a favourable margin. Rapeseed crushers have less hedging protection for several reasons. First, the Winnipeg Commodity Exchange has a futures market for seed only. Since rapeoil price is negotiated with refiners in a manner similar to soyoil, and the two products are close substitutes, there is usually a close correspondence between soyoil and rapeoil prices, thus allowing rapeoil to be hedged on a basis relative to the Chicago soyoil futures price. However, feed companies in Western Canada do not, in general, commit their requirements ahead for meal, and, there is not as strong a relationship between rapemeal and soymeal prices, so little hedging protection is

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8. With the opening of the Windsor crushing plant soybean imports will likely increase and soymeal and oil imports decline.

available for rapemeal if it is required. Secondly, the WGE rapeseed market is thin and highly influenced by Japanese and other foreign demand for seed exports. These conditions of low volume and extremely variable prices make it difficult to forecast margins accurately enough to plan efficient operations. As a consequence, crushers are unlikely to operate on the rapeseed futures market unless they foresee a sufficiently large margin to provide for mis-estimation (Rigaux, 1976).

The rate of oilseed crushing, and therefore, the total oil and meal produced each year in Canada, varies as crushers respond to attainable crushing margins. For each crusher, the margin accessible reflects the demands of refiners and feed manufacturers for oil and meal, the willingness of his competitors to supply these products, and the production and storage capacity available. Shifts in the relative demand for meal and oil affect rapeseed and soybean crushing differently because the oil/meal ratio is different. Thus, rapeseed crushing is favoured when oil prices are high relative to meal, as in 1974 when over 80 percent of crushing revenue was derived from oil. Conversely, soybean crushing is favoured when meal prices are high relative to oil. Econometric estimates of rapeseed crush demand are given in Agriculture Canada (1980), Craddock (1973), Furtan et. al. (1978), Griffith (1979), Kulshreshtha et. al. (1979) and USDA (1978a). Apart from soybeans, the only other oilseed imported into Canada is U.S. peanuts, and Clark (1976) estimates most of these imports are for food use.

The outputs from crushing are crude vegetable oil and protein meal. Most of this Canadian output is sold to domestic edible oil refiners and the feed manufacturing sector. Small amounts are, however, exported. During the 1960's, all rapeoil exports went to the U.S. and the quantities were small. Then, in 1972-73, 35,000 MT were exported and since then increasing quantities have been shipped to Japan, EC, India and Bangladesh. Soyoil exports, following the U.K. accession to the EC, fell from 44,000 MT in 1971 to only 2,000 MT in 1975. Major export markets for both rapemeal and soymeal are in the EC. Small amounts of butter, marine oils, fishmeal and linseed meal are also exported.

2.3 Vegetable Oil Refining

Crude edible vegetable oils are refined at 18 plants across Canada, all being integrated with manufacturers, crushers or animal fat renderers.

Purchases of crude degummed soyoil by refiners from crushers are carried out in two stages. The first is to book the refiners' requirements for up to six months ahead. Associated with this forward commitment by crushers is the negotiation of a basis over the Chicago futures price for the month of delivery. When delivery approaches, the refiner elects to price each shipment at the current futures price plus the basis. Because the major alternative to Canadian produced soyoil is imported U.S. soyoil, the basis approximates the sum of the ten percent tariff and

transfer costs. Purchases of crude rapeoil are made in the same way but the basis added to the soyoil futures price is smaller by about 0.75 c/lb.

Imports of crude oil are obtained through brokers located in Toronto, New York and London. Because the lag between booking and receiving off-shore oils is often as long as three months, their prices can depart widely from Chicago prices in spite of their considerable substitutability. Thus, until their foreign oil purchases arrive and/or are offset by sales of finished product, refiners usually hedge these volumes by selling soyoil futures. Apart from soyoil, major crude oil imports are corn, cottonseed and sunflower oils from the U.S.; peanut oil from the U.S. and Brazil; palm and palm kernel oil from Malaysia and Indonesia; and coconut oil from Sri Lanka, Malaysia and the Philippines. Canada also imports olive oil from the Mediterranean, lard from the U.S., and butter from Oceania.

Sales by refiners are usually made to manufacturing divisions of the same company because of the extent of integration. Where shipment is required, tank cars or trucks are used. Since they are not refrigerated, the danger of quality deterioration of the final product makes it desirable to move the oil as quickly as possible. Thus, export sales of refined oils have been negligible. Similarly, because of this danger, and the degree of tariff escalation, imports of refined oils have been small.

Manufacturers use refined oils to produce margarine, salad oils, processed products such as chips and donuts, bakery products and cooking oils. Canadian demand for edible oil products is expanding: margarine usage is estimated at 10 lbs. per capita per annum, and shortening and other oils at 30 lbs., for a total of 40 lbs., compared to a total of 30 lbs. in the mid-1960's. Some econometric estimates of the demand for different vegetable oil types is given by Al-Zand and Hassan (1977).

Refiners process their purchases in various ways and then blend many or just a few oils together into major types of refined oils. Margarine is produced primarily from soyoil and rapeoil and is the fastest-growing sector of the refined products market. Animal fats (at about 25 percent) are relatively important for "shortening" oils, along with soy, rape, palm, palm kernel and coconut oils. This is the largest but slowest-growing end use for edible oils. Finally, the main ingredients of the smallest but rapidly expanding "salad" oil sector are rapeoil (about half) and sunflower oil, followed by soy, corn and peanut oils. Other oils such olive and sesame have specialized uses and are not generally regarded as substitutes by refiners.

2.4 Vegetable Oil Consumption

Rapeseed oil and soybean oil are the two most important vegetable oils consumed in Canada with each having a market share of 25-35 percent (Tables 2.2 and 2.3). Recently, rapeoil's share has been growing at the

TABLE 2.2: Canadian Rapeoil Supply and Disposition, 1958-59 to 1978-79, 000 MT.[ii]

Crop Year beginning Aug. 1	Supply			Disappearance		
	Beginning Stock	Production	Supply	Exports	Domestic Demand	Ending Stock
1958-59	0	6	6	0	6	0
1959-60	0	2	2	0	2	0
1960-61	0	8	8	0	7	1
1961-62	1	11	12	0	9	3
1962-63	3	14	17	0	16	1
1963-64	1	14	15	0	14	1
1964-65	1	19	20	0	18	2
1965-66	2	33	35	0	33	2
1966-67	2	45	47	0	45	2
1967-68	2	47	49	0	48	1
1968-69	1	64	65	0	62	3
1969-70	3	69	72	0	71	1
1970-71	1	77	78	4	72	2
1971-72	2	106	108	8	95	5
1972-73	5	134	139	35	99	5
1973-74	5	126	131	28	96	7
1974-75	7	109	116	20	92	4
1975-76	4	142	146	42	98	6
1976-77	6	226	232	92	131	9
1977-78	9	259	268	74	184	10
1978-79	10	296	306	111	177	18

[ii] All quantities are rounded to nearest 1,000 MT.

Source: Statistics Canada. Grains and Oilseeds Review. Cat. No. 22-007, Ottawa.

Statistics Canada. Oils and Fats. Cat. No. 32-006, Ottawa.

TABLE 2.3: Canadian Market Shares of Various Vegetable Oils, Crop Year, 1960-61 to 1977-78

Crop Year beginning Aug. 1	Coconut Oil	Corn Oil	Cotton Seed Oil	Palm[1/] Kernel Oil	Palm[1/] Oil	Peanut Oil	Rapeseed Oil	Soybeen Oil	Sunflower Seed Oil	Other Oils
				(percent)						
1960	14.1	NA	12.8	10.7		1.3	4.4	51.3	1.3	4.2
1961	16.8	NA	10.1	13.4		4.1	5.9	43.3	.6	5.8
1962	12.8	NA	10.0	1.7	6.8	5.4	10.3	46.0	2.3	4.6
1963	10.4	NA	10.5	2.1	4.6	4.8	8.2	53.1	1.3	5.1
1964	10.5	4.4	10.5	2.2	5.1	2.1	10.2	51.5	2.0	1.5
1965	9.4	4.3	11.2	2.6	4.6	4.3	16.1	42.2	1.1	4.2
1966	8.9	3.3	2.5	2.1	5.7	6.7	21.6	41.9	1.1	6.2
1967	9.3	3.0	1.9	1.9	3.9	5.8	21.7	39.0	10.2	3.2
1968	8.2	3.8	3.1	3.4	6.3	4.0	24.9	36.1	9.5	0.5
1969	8.1	2.4	5.4	1.4	3.9	2.5	28.2	42.0	5.8	0.5
1970	8.6	3.0	4.5	2.6	4.8	3.5	28.4	40.7	3.4	0.5
1971	9.9	3.7	3.3	1.5	8.2	2.7	34.6	30.1	5.4	0.5
1972	9.1	1.5	3.3	2.2	9.3	2.2	32.8	34.3	4.4	0.8
1973	6.0	3.1	3.1	1.4	3.7	2.4	31.0	43.9	3.5	1.9
1974	7.4	3.2	3.6	1.4	8.9	1.9	30.0	40.6	1.2	1.8
1975	7.6	3.8	2.0	2.4	15.1	1.7	25.7	38.8	2.3	0.6
1976	7.7	4.0	1.4	2.2	11.1	1.9	33.8	37.2	2/	0.7
1977	5.7	4.2	1.1	1.5	5.3	1.6	43.5	36.3	2/	0.7

NA - Data Not Available prior to 1964.

1/ Palm Kernel Oil and Palm Oil reported together prior to 1962.

2/ Domestic Production not reported.

expense of soyoil. Palm, palm kernel, coconut, corn, cottonseed and sunflower oils make up the remaining 30 to 50 percent of the market. Corn and sunflower oils are partly supplied domestically, but the other oils are entirely imported. Of the total fats and oils market, edible vegetable oils now make up 86 percent compared to 78 percent in 1970. Econometric estimates of the demand for individual vegetable oils are reviewed in Griffith (1979).

2.5 Protein Meal Consumption

Canadian oilseed crushers produce rapemeal, soymeal, linseed meal and sunflower meal. Large quantities of soymeal are imported from the U.S. to fulfill a deficit domestic market, and small quantities of cottonseed and peanut meals are also imported from the U.S. Perkins (1976) estimates that rapemeal supplies about 175,000 MT or 16 percent of the one million tonne Canadian protein meal market (Table 2.4). Because of problems with glucosinolate, rapemeal in the past has been used up to a maximum of five percent in monograstric rations and ten percent in ruminant supplementation. Further, palatability was often cited as a limiting factor in the use of rapemeal. Genetic and processing improvements are diminishing and importance of these problems and allowing rapemeal to compete more directly with soybean meal.

Soymeal accounts for roughly 79 percent of the Canadian protein meal market or 836,000 MT, up from 45 percent in 1955-65. Of this, an estimated 560,000 MT was of U.S. origin (imported meal or beans), accounting for 67 percent of total soymeal use or about 55 percent of all Canadian protein meal use. Perkins (1976) and others believe a considerable proportion of this dependence on U.S. soybeans can be substituted for by Canadian rapemeal once the low glucosinolate varieties become established. Econometric estimates of the demand for soymeal and rapemeal are presented in Agriculture Canada (1980), Craddock (1973), Furtan et. al. (1978), Griffith (1979) and Kulshreshtha et. al. (1979).

Domestically produced linseed and sunflower meal, and small volumes of imported peanut and cottonseed meal, account for about two percent or 25,000 MT of the domestic protein meal market, while fishmeal accounts for three percent or 35,000 MT.[9]

2.6 Oilseed Production Support Policies

Oilseed production in Canada is largely unrestricted by government policy. Although it was true until the early 1970's that Canada was the

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[9] For a more detailed analysis of the Ontario manufactured feeds sector, see Sorflaten and Martin (1974).

TABLE 2.4: Canadian Rapemeal Supply and Disposition, 1958-59 to 1978-79, 000 MT

Crop Year beginning Aug. 1	Supply			Disappearance		
	Beginning Stock	Production	Total Supply	Exports	Domestic Demand	Ending Stock
1958-59	.9	10.0	10.9	0	10.0	.9
1959-60	.9	2.7	3.6	0	3.4	.2
1960-61	.2	13.6	13.8	0	13.4	.4
1961-62	.4	18.3	18.7	0	17.9	.8
1962-63	.8	21.8	22.6	0	21.7	.9
1963-64	.9	21.0	21.9	0	20.8	1.1
1964-65	1.1	28.5	29.6	0	29.0	.6
1965-66	.6	49.0	49.6	0	48.5	1.1
1966-67	1.1	64.3	65.4	0	64.3	1.1
1967-68	1.1	67.3	68.4	0	62.5	5.9
1968-69	5.9	89.1	95.0	0	94.4	.6
1969-70	.6	103.6	104.2	0	101.5	2.7
1970-71	2.7	112.8	115.5	0	110.5	5.0
1971-72	5.0	162.6	167.6	0	164.4	3.2
1972-73	3.2	204.2	207.4	19.5	183.3	4.6
1973-74	4.6	193.9	198.5	47.6	148.0	2.9
1974-75	2.9	157.8	160.7	10.7	149.7	.3
1975-76	.3	197.4	197.7	30.0	160.6	7.1
1976-77	7.1	314.9	322.0	107.1	203.4	11.5
1977-78	11.5	357.5	369.0	156.3	202.4	10.3
1978-79	10.3	416.7	427.0	169.7	239.7	17.6

Sources: Statistics Canada. Grain and Oilseeds Review. Cat. No. 22-007, Ottawa.

Statistics Canada. Oils and Fats. Cat. No. 32-006, Ottawa.

only major producing country with no direct oilseed price support measures (Moe and Mohtadi, 1971, p. 33), oilseeds have recently been included in price "stabilization" arrangements. Soybeans are a "named" commodity under the amended Agricultural Stabilization Act (1975) and are thus liable for support of 90 percent of the previous five-year average market price adjusted for changes in production costs between the base period and the support year.[10] In the five years since the Act was amended the market price for soybeans has exceeded the support price and no support payments were made. Rapeseed and flaxseed are included in the Western Grain Stabilization Program (1976), which guarantees that the net cash flow to commercial Praire grain producers in aggregate will not fall below the average net cash flow in the previous five years. Participation is voluntary and contributions (premiums) are required. The Canadian Wheat Board also has delivery quotas for rapeseed but these have been non-constraining except in 1971.

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[10] Under the Ontario Farm Income Stabilization Program the level of support is increased to 95 percent. (Jaeger, 1979).

CHAPTER 3

THE JAPANESE OILSEED AND OILSEED PRODUCT MARKET - DESCRIPTION AND POLICIES

3.1 Oilseed Production

Japan produces relatively small and declining quantities of rapeseed, soybeans and peanuts. To appreciate the role of these oilseeds in the Japanese economy and the policies which affect them it is important to understand the context in which these products are produced and consumed.[11]

Japan today is a highly developed industrial country where agriculture contributes only a minor proportion of total national output. The area of agricultural land has declined from a peak of 6.1 mil. ha. in 1961 to about 5.4 mil. ha. in 1978. Paddy fields occupy some 3.2 mil. ha. and have varied little in total area. The area of orchards, permanent plantations and arable grasslands has increased considerably since 1960, while the area of ordinary upland fields (where oilseeds are grown) has dropped to about one-half its 1960 size. Japan has the highest intensity of employment per ha. among developed countries, even though there has been a decline of 65 percent in the number of persons working in agriculture since 1960. Since farm labour is very expensive in Japan, it is provided mainly by women and old men. The principal income earners tend to commute to work in cities, thus the majority of farms are part-time (87%) and the majority of income is derived from off-farm sources (73%) (Saxon et. al., 1980). Japan is also the largest user of chemical fertilizer in the world based on the total quantity of all nutrients consumed per hectare of agricultural land. Total farm inputs have, therefore, changed significantly in terms of composition but have varied little in total quantity. Further, total input productivity has varied little since about 1965, but the emphasis has been placed on improving yields per hectare rather than yields per man-hour, since land is the relatively scarcer resource.

On the demand side, the rapid westernization of Japanese tastes, and the rapid growth in income and standards of living has changed the Japanese diet considerably in the direction of animal products. For example the calories supplied by animal products doubled from 8.27 percent

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[11] For more detailed accounts of these basic trends, see Saxon (1976a) and Saxon (1975), respectively, and the recent comprehensive review by Saxon, Roberts and Bain (1980).

of total calorie intake per capita in 1954-55 to 17.23 percent in 1965-66, and then to 35 percent in 1976. Consumers are eating less cereal products including rice, and more meats, fruits, vegetables and vegetable oils.

Demand shifts can be readily linked to production changes. Domestic agricultural production rose by 41 percent between 1955-73, but crop production rose only 10 percent, while livestock production increased 120 percent, reflecting the marked swing in demand towards meat, eggs and milk. Changing demand patterns also caused the composition of crop output to change--production of wheat, coarse grains, pulses (including soybeans and peanuts) and industrial crops (including rapeseed) fell sharply, while production of fruit increased by 250 percent and vegetables, 67 percent. Finally, the level and rates of growth in imports reflect the trends in Japanese eating and purchasing habits, i.e., imports of meats and fruits, and feedgrains for livestock, are growing rapidly; while imports of cereals have much slower growth rates.

Thus, the production of oilseeds in Japan is in the context of a contracting agricultural sector and a pattern of demand which now emphasizes livestock products, fruits, and vegetables instead of the traditional cereal products. The area planted to oilseeds has, therefore, shown a continually declining trend over the past two decades. Rapeseed area has fallen from 195,000 ha. in 1961-62 to only 3,000 ha. in 1977-78. Production has correspondingly declined from 274,000 MT to 5,000 MT over the same period, even though yields have increased by about 15 percent. The area planted to soybeans has declined from 385,000 ha. in 1955-56 to 79,000 ha. in 1977-78. Production has fallen from 507,000 MT in 1955-56 to 66,000 MT in 1977-78. Finally, the area planted to peanuts has also fallen rapidly--to 35,000 ha. in 1977-78. Production fell more gradually to 69,000 MT, reflecting very large improvements in yields. These decreases in production for rapeseed and soybeans are shown in Tables 3.1 and 3.2, along with other aspects of their supply and disappearance.

3.2 Oilseed Crushing

Since rapeseed import quotas (discussed later) were, until 1971, allocated individually among hundreds of small processing plants located throughout Japan's farming regions, the import quota system hindered the construction of large rapeseed crushing plants near ports. There had been no such restriction on construction of soybean crushing plants because there has been no import quota on soybeans since 1961 and, thus, no individual plant allocations. Consequently, until 1971, the crushing industry was characterized by large, efficient soybean plants and small, scattered and inefficient rapeseed plants. The degree of integration was also greater for soybean crushers. Relaxation of rapeseed quotas in 1971 gave crushers the opportunity to rationalize the structure of their industry (Sabotini, 1975).

Because domestic oilseed production is very small in relation to domestic requirements, large quantities of oilseeds are imported into

TABLE 3.1: Japanese Soybean Supply and Disposition, 1961 to 1978, 000 MT.

Calendar Year	Supply				Disappearance		
	Beginning[1] Stock	Production[2]	Imports	Total Supply	Crush	Food, Seed, Waste	Ending Stock
1961	108.0	200.0	1158.0	1466.0	1248.2	115.8	102.0
1962	102.0	178.0	1293.0	1573.0	1308.8	142.2	122.0
1963	122.0	166.0	1544.0	1832.0	1468.7	185.3	178.0
1964	178.0	158.0	1607.0	1943.0	1603.1	208.9	131.0
1965	131.0	100.0	1847.0	2078.0	1600.4	258.6	219.0
1966	219.0	103.0	2168.0	2490.0	1886.8	325.2	278.0
1967	278.0	90.0	2170.0	2538.0	1934.8	347.2	256.0
1968	256.0	86.0	2421.0	2763.0	2121.4	411.6	230.0
1969	230.0	72.0	2591.0	2893.0	2248.6	466.4	178.0
1970	178.0	57.0	3244.0	3479.0	2577.2	648.8	253.0
1971	253.0	53.0	3212.0	3518.0	2624.6	642.4	251.0
1972	251.0	53.0	3396.0	3700.0	2742.8	679.2	278.0
1973	278.0	55.0	3635.0	3968.0	2840.0	727.0	401.0
1974	401.0	53.0	3244.0	3698.0	2829.2	648.8	220.0
1975	220.0	60.0	3334.0	3614.0	2699.2	666.8	248.0
1976	248.0	60.0	3554.0	3862.0	2791.2	710.8	360.0
1977	360.0	55.0	3602.0	4017.0	2957.6	720.4	339.0
1978	339.0	66.0	4260.0	4665.0	3214.0	852.0	599.0

[1] Stock estimates are for April 1 from 1961 through 1968 and January 1 thereafter.

[2] From crop harvested in the fall of previous year.

Source: unpublished data, Ministry of Agriculture, Forestry and Fisheries, Tokyo, Japan.

TABLE 3.2: Japanese Rapeseed Supply and Disposition, 1960 to 1978, 000 MT.

Calendar Year	Supply			Disappearance		
	Beginning[1] Stock	Production[2]	Imports	Total Supply	Crush	Ending Stock
1960	14.0	262.0	13.0	289.0	269.0	20.0
1961	20.0	263.0	35.0	318.0	298.0	20.0
1962	20.0	274.0	49.0	343.0	338.0	5.0
1963	5.0	247.0	89.0	341.0	335.0	6.0
1964	6.0	109.0	66.0	181.0	174.0	7.0
1965	7.0	131.0	133.0	271.0	264.0	7.0
1966	7.0	123.0	222.0	352.0	332.0	20.0
1967	20.0	91.0	219.0	330.0	311.0	19.0
1968	19.0	76.0	254.0	349.0	325.0	24.0
1969	24.0	66.0	276.0	366.0	348.0	18.0
1970	18.0	47.0	336.0	401.0	374.0	27.0
1971	27.0	30.0	407.0	464.0	437.0	27.0
1972	27.0	23.0	604.0	654.0	590.0	64.0
1973	64.0	16.0	687.0	767.0	704.0	63.0
1974	63.0	13.0	672.0	748.0	685.0	63.0
1975	63.0	9.0	659.0	731.0	710.0	21.0
1976	21.0	7.0	718.0	746.0	698.0	48.0
1977	48.0	6.0	769.0	823.0	778.0	45.0
1978	45.0	5.0	823.0	873.0	851.0	22.0

[1] Stock estimates are for April 1 from 1960 through 1968 and January 1 thereafter.

[2] From crop harvested in the fall of previous year.

Source: unpublished data, Ministry of Agriculture, Forestry and Fisheries, Tokyo, Japan.

Japan. These include rapeseed, soybeans, peanuts, cottonseed, sunflowerseed, safflowerseed, flaxseed, copra and palm kernels.

Most domestically produced soybeans (which have a low oil content) and peanuts are used for food purposes and do not go through the crushing process. Some 10 to 20 percent of soybean imports and about 50 percent of peanut imports are used for food purposes as well. All remaining domestically produced and/or imported seed are crushed for oil and meal.

Imports of soybeans by Japan have increased from 1.158 MMT in 1961 to 4.260 MMT in 1978. Soybeans are by far the most important oilseed in the Japanese crushing industry. The main supplier is the U.S. with a market share of 90 to 95 percent; other, currently marginal, suppliers are Brazil and the PRC. Canada also exports small amounts of full fat beans to Japan for direct food use.

Imports of rapeseed into Japan have increased from .013 MMT in 1961 to some .823 MMT in 1978. Rapeseed is the second most important oilseed in the Japanese crushing industry, and its position has strengthened considerably in relation to imports of other oilseeds. Japan takes between 70 and 90 percent of Canadian rapeseed exports, and this represents a share of between 80 to 100 percent of Japanese import demand.

Crushers in Japan do not buy imported oilseeds directly from exporters but from Japanese import companies. Umemoto (1973) lists two reasons for this. First, Japanese import companies buy more than a dozen different types of oilseeds, many of which are interchangeable, and there are at least 24 countries involved. Further, most of the seeds are bought from three months to a full year ahead of the actual delivery to the crushers. In making a correct purchasing decision, crushers are highly dependent on trade information obtained by importers through hundreds of branch offices scattered around the world. Second, crushers can buy more cheaply from importers than from exporters. The crushers maintain close contact with exporters and are aware of their offering prices. For rapeseed, exporters offer sales on a CIF basis.[12] Crushers then negotiate prices with importers on the basis of the CIF price, and importers have to provide discounts below this price. The average discount, or negative import margin, is $1 to $2 per MT. Thus, whichever importer offers the largest discount gets the business, provided that the crusher has decided that the discounted CIF price for rapeseed is competitive and will provide a reasonable crushing margin. Econometric estimates of crush demand for oilseeds in Japan have been made by Furtan et al. (1978), Griffith (1979) and USDA (1978a).

The crushing process for rapeseed produces crude rapeoil and rapemeal. After refining, the price of oil is established by the crushers

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[12] Japanese importers buy CIF rather than FOB since exporters can frequently provide better freight rates due to larger volume and the annual contracts some sign with freight companies.

on a monthly basis, but due to the large number of crushers and the competitiveness of the industry, no one crusher can influence the price to a significant extent. The crushers attempted to arrest declining wholesale vegetable oil prices in 1976 (mainly soyoil) by cutting back capacity utilization. Thus soybean stocks rose about 45 percent from 1975 levels and rapeseed stocks rose some 100 percent. The other product, rapemeal, has its price determined on a three month basis when sold for feed. Thus, the crushers know what the price of their products will be for only two to three months ahead, yet they purchase seed three to twelve months ahead. However, Japanese crushers do not hedge their position in the normal sense. Their use of the WGE rapeseed futures market is limited, and they regard the factors which influence the Chicago soyoil and soymeal markets as different from those affecting the Japanese oil and meal markets. What they do is force the Japanese importers to provide the hedge for them. The importers must find some way to guarantee their usually very small margin plus costs. To do this they either take a position, expecting a change in the futures price and, thus, in the price offered by exporters, when they conclude transactions with exporters or crushers, or they act as pure speculators with no offsetting cash market transaction. Thus, the importers are the risk takers, and their actions provide the hedging protection for the crushers. However, since the majority of oilseed imports are brought in by the ten major Japanese trading companies, they are sufficiently diversified to be able to spread this area of risk across other divisions of their companies (JETRO, 1975).

As mentioned previously, the crushing process produces crude vegetable oil and meal. Oils produced include soyoil, rapeoil, cottonseed oil, peanut oil, sunflowerseed oil, coconut oil and palm kernel oil. Japan also produces butter and lard, and large quantities of marine oils. This output of oils and fats is, however, generally insufficient to satisfy domestic requirements, and crude oil is imported, including rape, soy, palm kernel, coconut, palm and cottonseed oils. Japan has also exported rapeoil and soyoil on occasion (to improve domestic market prices). Vegetable oil self-sufficiency has fallen from 31 percent in 1960 to six percent in 1978, when only domestically produced seeds are counted. Animal and marine oils and fats self sufficiency has fallen from 60 percent to 40 percent over the same period. Stocks of vegetable oil held by crushers are small and are usually assumed to have no effect on price.

Oilmeals produced include rape, soy, linseed, cottonseed, peanut, sunflower, copra, palm kernel and fish meals, but as with oils, there is a small domestic deficit and rape, soy and peanut meals are imported. Some 90 percent of soymeal imports are supplied by the U.S., while Canada supplies a large proportion of rapemeal requirements.

3.3 Oilseed and Vegetable Oil Consumption

Some 20 percent of Japanese produced soybeans are consumed directly in the dried state as food, while most of the remaining 80 percent is processed in various ways and enters consumption in the form of

bean curd (tofu), bean paste (miso), soysauce and oil. All these products are important items in the Japanese diet, but per capita demand is relatively static. For example, consumption of soybeans for food purposes has risen slowly from 5.5 kg./capita/year in 1959 to 5.8 kg./capita/year in 1974, and is projected to remain stable to 1985 (Saxon, 1976b).

Consumption of all oils and fats rose from 3.8 kg./head/year in 1959 to 11.5 kg./head/year in 1974, and is projected to increase to 14.0 kg./head/year in 1985. During the period 1966 to 1973, Japanese consumption of edible vegetable oils increased by about 3 percent annually, and is currently near 11 kg./head/year. Thus vegetable oils account for about 75 percent of all edible fats and oils consumption (Saxon, 1976b). The income elasticity of demand for vegetable oil in Japan is estimated to be 0.55, while the price elasticity of demand is estimated to be -0.05 (Moe and Mohtadi, 1971). Other estimates have been made by Furtan et. al. (1978), Griffith and Meilke (1980b), Labys (1977) and USDA (1978a).

After crushing, crude vegetable oil is refined and sold (1) under their own brand name as a mixed salad oil in the consumer market, (2) sold to wholesalers for the institutional market, or (3) sold to secondary processors for the manufacture of margarine, shortening and other products. In Japan, most rapeoil is consumed in liquid form for home cooking with only a small proportion used in manufactured products such as margarine. More than 75 percent of soyoil is used in cooking or salad oils with the market equally divided between home and institutional use. Tables 3.3 and 3.4 contain data on the supply and disposition of soyoil and rapeoil in Japan.

3.4 Protein Meal Consumption

During the period 1966 to 1973, Japanese demand for oilmeals increased by about five percent annually, while since 1970 the demand for livestock feedstuffs in aggregate has increased by over 6 percent annually. Over an earlier period (1955-65), soymeal was the most important meal fed to livestock with a market share of 60 percent, and fishmeal was next with a market share of 18 percent. Consumption of both these meals was increasing rapidly by 10 to 15 percent annually. The other meals, including rapemeal, had only small market shares which were either static or declining. More recently the rate of increase in demand for soymeal has fallen while the demand for other meals has increased. The major constraint to the expanded use of rapemeal in Japan is not the existence of glucosinolates, but the practice of utilizing most rapemeal as an organic fertilizer for vegetables, citrus trees and tobacco. The RAC has initiated research programs in Japan in order to increase use of rapemeal in animal feeds (Sabotini, 1975). Econometric estimates of the demand for protein meal in Japan have been made by Furtan et. al. (1978), Griffith (1979) and USDA (1978a). Tables 3.5 and 3.6 contain data on the supply and disposition of soymeal and rapemeal in Japan.

TABLE 3.3: Japanese Soybean Oil Supply and Disposition, 1961 to 1978, 000 MT.

Calendar Year	Supply			Disappearance	
	Production	Imports	Total Supply	Exports	Domestic[1] Demand
1961	212.2	0.0	212.2	27.0	185.2
1962	222.5	0.0	222.5	8.0	214.5
1963	249.7	1.0	250.7	3.0	247.7
1964	272.5	1.0	273.5	5.0	268.5
1965	272.1	1.0	273.1	6.0	267.1
1966	320.8	0.0	320.8	5.0	315.8
1967	328.9	0.0	328.9	5.0	323.9
1968	360.6	0.0	360.6	7.0	353.6
1969	382.3	1.0	383.3	3.0	380.3
1970	438.1	4.0	442.1	13.0	429.1
1971	446.2	1.0	447.2	18.0	429.2
1972	466.3	1.0	467.3	4.0	463.3
1973	482.8	6.0	488.8	9.0	479.8
1974	481.0	20.0	501.0	3.0	498.0
1975	458.9	14.0	472.9	0.0	472.9
1976	474.5	12.0	486.5	2.0	484.5
1977	502.8	0.0	502.8	1.0	501.8
1978	546.4	0.0	546.4	1.0	545.4

[1] Calculated as a residual, includes stock changes and waste.

Sources: unpublished data, Ministry of Agriculture, Forestry and Fisheries, Tokyo, Japan and Trade Yearbook, FAO.

TABLE 3.4: Japanese Rapeseed Oil Supply and Disposition, 1960 to 1978, 000 MT.

Calendar Year	Supply			Disappearance	
	Production	Imports	Total Supply	Exports	Domestic[1] Demand
1960	110.3	0.0	110.3	0.0	110.3
1961	122.2	0.0	122.2	0.0	122.2
1962	138.6	0.0	138.6	1.0	137.6
1963	137.4	0.0	137.4	3.0	134.4
1964	71.3	0.0	71.3	2.6	68.7
1965	108.2	0.0	108.2	3.6	104.6
1966	136.1	0.0	136.1	10.8	125.3
1967	127.5	0.0	127.5	9.5	118.0
1968	133.2	0.0	133.2	6.1	127.1
1969	142.7	0.0	142.7	11.6	131.1
1970	153.3	0.0	153.3	11.4	141.9
1971	179.2	0.0	179.2	13.4	165.8
1972	241.9	3.3	245.2	10.7	234.5
1973	288.6	16.8	305.4	2.9	302.5
1974	280.8	6.8	287.6	2.6	285.0
1975	291.1	14.8	305.9	1.8	304.1
1976	286.2	14.1	300.3	1.3	299.0
1977	319.0	7.5	326.5	2.1	324.4
1978	348.9	14.5	363.4	1.8	361.6

[1] Calculated as a residual, includes stock change and waste.

Sources: unpublished data, Ministry of Agriculture, Forestry and Fisheries, Tokyo, Japan and Trade Yearbook, FAO.

TABLE 3.5: Japanese Soybean Meal Supply and Disposition, 1961 to 1978, 000 MT.

Calendar Year	Supply			Disappearance	
	Production	Imports	Total Supply	Exports	Domestic[1] Demand
1961	998.6	56.0	1054.6	0.0	1054.6
1962	1047.0	16.0	1063.0	0.0	1063.0
1963	1175.0	2.0	1177.0	0.0	1177.0
1964	1282.5	13.0	1295.5	0.0	1295.5
1965	1280.3	46.0	1326.3	0.0	1326.3
1966	1509.4	7.0	1516.4	0.0	1516.4
1967	1547.8	2.0	1549.8	0.0	1549.8
1968	1697.1	15.0	1712.1	0.0	1712.1
1969	1798.9	27.0	1825.9	0.0	1825.9
1970	2061.8	72.0	2133.8	0.0	2133.8
1971	2099.7	39.0	2138.7	0.0	2138.7
1972	2194.2	52.0	2246.2	0.0	2246.2
1973	2272.0	277.0	2549.0	2.0	2547.0
1974	2263.4	132.0	2395.4	23.0	2372.4
1975	2159.4	18.0	2177.4	48.0	2129.4
1976	2233.0	193.0	2426.0	0.0	2426.0
1977	2366.1	317.0	2683.1	0.0	2683.1
1978	2571.2	340.0	2911.2	0.0	2911.2

[1] Calculated as a residual, includes stock change and waste.

Sources: unpublished data, Ministry of Agriculture, Forestry and Fisheries and Trade Yearbook, FAO.

TABLE 3.6: Japanese Rapeseed Meal Supply and Disposition, 1960 to 1978, 000 MT.

Calendar Year	Supply			Disappearance
	Production	Imports	Supply	Domestic[1] Demand
1960	156.0	0.0	156.0	156.0
1961	172.8	0.0	172.8	172.8
1962	196.0	0.0	196.0	196.0
1963	194.3	0.0	194.3	194.3
1964	100.9	0.0	100.9	100.9
1965	153.1	0.0	153.1	153.1
1966	192.6	0.0	192.6	192.6
1967	180.4	0.0	180.4	180.4
1968	188.5	0.0	188.5	188.5
1969	201.8	0.0	201.8	201.8
1970	216.9	1.0	217.9	217.9
1971	253.5	13.0	266.5	266.5
1972	342.2	6.0	348.2	348.2
1973	408.3	11.0	419.3	419.3
1974	397.3	11.0	408.3	408.3
1975	411.8	0.0	411.8	411.8
1976	404.8	14.0	418.8	418.8
1977	451.2	24.0	475.2	475.2
1978	493.6	25.0	518.6	518.6

[1] Calculated as a residual, includes stock change and waste.

Sources: unpublished data, Ministry of Agriculture, Forestry and Fisheries, Tokyo, Japan and Trade Yearbook, FAO.

3.5 General Trade Policy

The control of imports and foreign investment in postwar Japan constitutes a striking feature of their foreign economic policy as well as an inseparable component of their overall domestic growth strategy. This strategy is a blend of a high degree of competition within a domestic economy which has been carefully protected from foreign competition. The country operates under a mixed system of private enterprise highly manipulated by government. The logic of the Japanese growth strategy is a simple one; maximize the output capacity of the national economy by accelerating capital accumulation and concentrating resources in the building of important industries. Protection of these industries was taken for granted. Anything else, except the protection of food production capacity, was deemed of secondary importance to the primary task of promoting Japanese industrialization. Protectionism in Japan has, thus, been remarkably thorough and extensive (Ozaki, 1972). This is the context under which domestic agricultural and trade policies have been formed.

3.6 Oilseed Production Support Policies

In the late 1940's and early 1950's, food demand was increasing rapidly with population and income, but low land fertility, increased rates of absorption of agricultural land by urban uses, and a series of natural disasters, reduced domestic food supply. In addition, the shortage and tight controls on foreign exchange prevented import replacement. These factors, and the growing political power of farmers, persuaded the government to introduce policies favourable to agricultural producers.

Some of these policies have been reviewed by Andrews (1971). They include intensive efforts to reclaim land for farming and to improve existing farmland; land reform; encouraging Japanese industry to increase production of farm equipment and fertilizer; encouraging co-operative marketing; increased research and technical assistance for rice production; and introducing price support measures for the main cereals (wheat, barley and rice) and other products.

These policy measures secured adequate supplies of the major cereals and the post World War II food shortage was largely overcome by about 1955. Nonetheless changes in the Japanese diet and overall low productivity meant that farmers' incomes were increasing less rapidly than non-farm incomes. These forces, plus concurrent developments in trade policy, led to the enactment in 1961 of the Agricultural Basic Law (ABL), in which basic principles of agricultural policy were formulated. The primary objectives were to increase agricultural productivity and "... to ensure that those engaged in agriculture have a standard of living comparable to those engaged in other industries" (OECD, 1967, p. 342). In line with these basic guidelines, more detailed policies relating to production, farm structure, prices and marketing were to be implemented if required.

From 1953, incomes of soybean and rapeseed producers were stabilized under the Agricultural Price Stabilization Act (APSA) (OECD, 1967). Soybeans and rapeseed were purchased by the government whenever producer prices fell below a guaranteed level, and imports were strictly controlled. At the time of soybean import liberalization in mid-1961, it was feared that the price of soybeans and rapeseed would fall, and that the provisions of the APSA could be inadequate to support prices as the government no longer had full control of total supply. Thus, in late 1961, the Soybean and Rapeseed Subsidy Temporary Measures Act was adopted. This Act, in line with the guidelines of ABL, aimed to protect producers' incomes by granting deficiency payments to producers who sold soybeans and rapeseed through nationwide agricultural co-operatives and dealers' associations. These marketing organizations had to submit marketing plans to the government for approval. The amount of the deficiency payment equalled the difference between "guaranteed prices" and "producer prices". The guaranteed prices were fixed by the government at levels existing before the soybean import liberalization, adjusted for changes in the price of inputs (including imputed labour costs - at industrial rates, rent, interest charges and depreciation) and consumer goods, taking into account production conditions and other relevant economic factors. The support price thus tended to rise over time, but there were exceptions. For example there was a rise of 2.4 percent for 1979, but no increase for 1978. The producer prices were also determined by the government and were closely related to CIF prices of imported seeds and beans, plus import duty and costs of placing imports in a comparable location.

Price policies such as the deficiency payment scheme were considered instrumental in achieving the goal of raising farm income (Saxon et. al., 1980), and in 1967, about 68 percent of the value of Japanese agricultural output was affected by price support and/or stabilization measures. Saxon et. al. estimate that the ratio of budget appropriations to agriculture to the net value of farm output rose from 12 percent in 1960 to 43 percent in 1977. The most successful support program was for rice. Rice, though declining in relative terms, maintains an important position in agricultural production and food consumption in Japan. Events in the rice market, therefore, have major impacts on overall agricultural output, farm prices and incomes, land utilization, and diets (OECD, 1974, p. 4). From 1955 to 1970, the Japanese Government contracted to buy certain amounts of rice at guaranteed prices well above world market levels. The guaranteed price rose by more than nine percent annually up until 1967-68. This program, coupled with other innovations in yields, was phenomenally successful and by 1970, there was a rice surplus of 8 MMT (Andrews, 1971). The ABL had to be revised to allow the imposition of rice acreage quotas.

In recent years, Japanese policy makers have shown a renewed concern with the problem of assuring adequate food supplies in a situation of rising demand, increasing and unstable world prices and limited local resources. The events of 1973, in particular, caused the Japanese to rethink some of their food policies. This led to a re-writing of official agricultural policies in a way which aims to encourage increased domestic production of several basic foods, and to safeguard in as many ways as possible the supply of foods and feedstuffs which cannot be produced in

sufficient quantities in Japan. The document "Promotion of Comprehensive Agricultural Policy" was released in 1975. Incentives were instituted to direct rice acreage into crops having higher priority. These incentives included higher support prices (wheat) and specific acreage incentive payments (rapeseed and soybeans). While the rapeseed payments were 25 percent of the guaranteed price (2300 Y/ha in 1975/76), and were raised to 3000 Y/ha by 1977/78, little impact was seen on production as rice was still more profitable. A more recent plan (1978) expands the incentives to the high priority crops (and includes them in the guaranteed price), and has a ten year time horizon. This policy is seen by some commentators as an official recognition of the long term nature of both the rice surplus and food self-sufficiency problems.

3.7 Tariffs

Before the 1961 general trade liberalization, tariffs on agricultural products were moderate and, in some cases, were waived. Domestic producers were effectively protected by the non-tariff measures discussed above and in section 3.8. After liberalization, this protection no longer held, so the government revised its tariff policy. Several categories of tariffs were developed (temporary tariff; temporary tariff quota; and seasonal tariff), with most tariffs revised upward to ease the adjustment to liberalization. For example, in July 1961, when soybean imports were liberalized, the tariff on soybeans and rapeseed was increased from 10 to 13 percent. Tariffs on most vegetable oils were raised to 10 percent. There were no preferences to any country, but Japan did impose a lower "conventional" duty on goods from countries which treated Japan on a MFN basis as negotiated under GATT (Spurlock, 1964). There was little change in the tariff rates until 1968.

The tariff reductions emanating from the Kennedy Round were implemented beginning in 1968, and tariff rates were changed from ad valorem to specific. Japan implemented 40 percent of the full reduction in July 1968 and planned to implement the remainder in lots of 20 percent every January from 1970 through 1972. However, on a variety of products of export interest to the LDC's, the full tariff cuts were to be made on the date of the first partial reduction. In oilseeds, the soybean tariff was reduced from 6.1 yen/kg. to 2.4 yen/kg. in 1971, in three stages; and the peanut (for oil) tariff was reduced from 20 percent in 1967 to zero in 1968.

However, while these tariff reductions were being slowly implemented, a number of other factors were influencing the tariff schedule. First, when rapeseed and vegetable oils were liberalized in early 1971, the tariff on soybeans was increased to bring the two major oilseeds onto a more even level (even though later reduced following U.S. pressure). Tariffs on the vegetable oils were also raised, but not applied. Second, following representations in UNCTAD, Japan announced its intention of implementing a GSP scheme beginning July 1971. The government then adopted a three-column tariff system which included a preferential tariff schedule applying to Far East countries and which involved reductions of 20 to 100 percent on

some 60 agricultural products. Only palm oils were affected in the oilseed complex. There were, however, ceilings imposed on volumes, so the concessions were not large. Finally, as part of the Government's plan to overcome balance of payment difficulties, tariffs were suspended in April 1972 for soybeans, rapeseed and soymeal. Then, in November 1972, a 20 percent across the board tariff reduction took place. In the agricultural sector there were exceptions however, including bulk items, most items recently liberalized, and those still subject to IQ, i.e., almost all agricultural products were exempt! Many of the exemptions, such as oilseeds and meals, had a zero "applied" tariff anyway. Refined oil tariffs were reduced by about 20 percent, and the duty on crude rapeoil and soyoil was reduced (temporarily) by about 10 percent (Sabotini, 1975).

When the duty on rapeseed and soybeans was suspended, Canadian rapeseed exports benefited more than U.S. soybean exports as the duty on rapeseed was about $12.70/MT, while the duty on soybeans was about $7.60/MT.

Japan circulated additional proposals for an extension of its GSP scheme in late 1975. An enlarged list of beneficiaries was brought out in 1976, and the full GSP extensions were implemented in early 1977. Japan also changed to a single column import tariff schedule, and reduced certain non-tariff measures in tropical products (FAO, 1977) but no oilseed products were included.

At the recently concluded Tokyo/Geneva Round of multilateral trade negotiations, the Japanese merely formalized and bound what had been general practice since 1972. The tariffs on rapeoil and soyoil were reduced to 17,000 yen/MT and bound, and those on oilseeds and oilmeals were bound at zero (Houck, 1979).

3.8 Non-Tariff Barriers

At the close of World War II, the Supreme Commander for the Allied Powers (SCAP--the occupation force) exercised strict control over foreign and domestic transactions. SCAP maintained complete control over all exports and imports of goods and services, and Japanese acquisition of foreign currency to purchase foreign goods was permitted only to fulfill the minimum needs of the nation. From 1945-49, these very strict controls were relaxed little by little, until by 1949, all the numerous memoranda and directions of SCAP, and all the ad hoc orders, ordinances and notices relating to trade and foreign exchange of the fledgling Japanese government, were combined into a single unified law--The Foreign Exchange and Foreign Trade Control Law (FEFTCL).

The stated objectives of the FEFTCL were to protect domestic industry (especially agriculture) to allow the domestic economy to recover and expand; achieve balance of payments equilibrium; conserve foreign exchange reserves; and maintain domestic price and currency stability.

The basic assumption underlying the intent of the FEFTCL was that under prevailing post World War II conditions, the use of direct control in the sphere of external trade was required, and that "managed" trade rather than "free" trade was a better alternative, i.e., it was the belief that tariffs alone were insufficient protection in the circumstances. Ozaki (1972, p. 2) interprets the feeling at the time:

> "Completely free trade has never existed in the past, and no-one expects that literally free trade will ever prevail in the future. Each nation state is interested in promoting growth of its economy and maximizing its economic welfare through the most effective means available. Foreign trade is not an end in itself, but a means of achieving those national goals. When there emerge inconsistencies between means and ends, it is unavoidable that some restriction be placed on the means."

As an integral part of the overall strategy of direct economic control practiced by the Japanese Government, the FEFTCL is generally agreed to be a significant factor in molding the pattern of Japanese postwar economic recovery.

During the decade up to 1960, Japan used various methods of controlling agricultural imports--import quotas, state trading, import licences, prior import deposits, and differential taxes. All aspects of foreign trade were, and are, under some degree of control. The Ministry of International Trade and Industry (MITI) is responsible for trade promotion and administration of import licencing. MITI works closely with business through the previously mentioned system of "administrative guidance". The Ministry of Agriculture and Food (MAF) plays a dominant role in determining how Japanese agricultural trade policy fits in with domestic programs. In fact, the MAF Food Agency completely controls trade in wheat, barley, rice and tobacco (Abbot, 1970).

Up until 1960, there was no substantial removal of quantitative trade controls or the associated foreign exchange restrictions. However, growing criticism of the effects of FEFTCL in GATT and IMF, and a rising domestic consciousness concerning trade liberalization led to the announcement in 1960 of the "Master Plan for Liberalizing Foreign Trade and Exchange" (MP). The broad objectives of the MP were similar to FEFTCL, but the details were more flexible. At the same time, there was a rationalization of the system of import quotas and licences (Spurlock, 1964). The core of the system was a semi-annual foreign exchange budget, with all imports requiring licences and all foreign exchange earnings handed over to the government. However, there were groupings of imports which varied according to the degree of control exercised over import licences:

Automatic Approval (AA) - least restrictive. For goods listed under this system for a six-month budget period, import licences were issued automatically to importers on application to a foreign exchange

bank. There was no limit on quantities or source of imports, but items could be added or deleted by the Government (MITI).

Automatic Fund Allocation (AFA) - less restrictive. An import licence requires application to and approval by MITI before it can be issued by a foreign exchange bank. In this category, there may be limits on quantities or sources of supply.

Fund Allocation (FA) - highly restrictive. Foreign exchange funds programmed under this category have a ceiling above which imports are not likely to be permitted, i.e., a global import quota and usually some restriction on a source since this affects foreign exchange balances.

Under the MP, products of advantaged industries were to be liberalized immediately (moved into AA); less internationally competitive goods later; and backward industries would remain protected until they became sufficiently strong vis-a-vis foreign competition. In most cases, however, for those items liberalized, there would be corresponding adjustments in tariff rates. From 1961 to 1964, there was a major liberalizing of imports--the liberalization ratio (an index of the extent to which imports were free from restrictions) rose from 40 percent to 93 percent--and in 1964, the Japanese Government complied with IMF rules and no longer practiced foreign exchange restraints on current transactions for balance of payments considerations.

Prior to 1961, most agricultural products were subject to quotas. When liberalization began, the government decided that early liberalization of rapeseed would be difficult because domestic production was undergoing a series of transformations in planting and cultivation methods (Ozaki, 1972, p. 189). Thus, rapeseed, the major source of the domestic supply of edible oil, should remain protected by quotas. Further, rapeoil and substitute oils were also to remain under import quotas. No such argument could be made for soybeans, however, and they were a target for early liberalization. Other oilseeds, except peanuts, were either on AA schedule or were scheduled for liberalization at the same time (July 1961).

From 1964 to 1969, there was little change in Japanese import quota regulations. Some imports (wheat, barley, rice and tobacco) remained completely controlled by the MAF Food Agency. Some 120 other categories were less tightly controlled but still subject to quota allocation (included were rapeseed, peanuts, all edible vegetable oils, rapemeal and soymeal). In addition, there were an assortment of other barriers such as import licences, deposits and taxes. Finally, through the import quota system, the government could, in many cases, determine the source of imports. This was important as a policy tool in relation to the status of trade between Japan and the exporter, in finding potential markets for Japanese exports and in diversification and security of supplies (Abbot, 1970).

From 1970 to 1972, Japan reduced the number of categories under quota from 120 to 34. About half these liberalized items were agricultural.

Quotas on rapeseed, peanuts for oil, rapemeal and soymeal, and rape, soy, safflower, corn and cottonseed oils were all removed from the quantitative import list in April 1971. Edible peanuts remained under quota to protect domestic producers (USDA, 1972; Hillman, 1979, p. 96). Japan also ceased to collect import deposits in May 1970, thus removing a significant non-tariff measure (Hay, 1971).

In October 1972, the Japanese Cabinet announced a programme to help reduce the huge balance of payments surplus, and included larger allocations for items under quota. This did not affect oilseeds, however, since they had already been liberalized. Other items included improvements in import financing and procedures, improvements in economic aid and co-operation, and liberalization of capital imports.

Also, by 1972, the self-sufficiency ratio for food products in aggregate had fallen from 90 percent in 1960 to 71 percent (Saxon, 1975). If the feedstuffs needed for the rapidly expanding livestock industries were included, the ratio was only 50 percent. Many Japanese were concerned by this decline in self-sufficiency which they viewed as a growing dependence on overseas suppliers who might not always be able or willing to maintain supplies. Developments in 1973 heightened this concern and helped reverse the trend toward complacency on the question of food supplies.

As a partial consequence, in April 1974, import controls were shifted from a foreign exchange base to a full quota base, so import items can now be divided into two categories (JETRO, 1975):

Import Declaration Items (ID) - may be imported in unlimited quantities at the discretion of the purchaser, and the procedures are simple. The importer initiates shipment and reports his intention to import by filling out an import declaration and submitting it to an authorized foreign exchange bank. Where payment for these imports is to be made in foreign exchange, an application for foreign exchange is submitted at the same time. The automatically approved applications are then submitted to Customs for clearance of the imports.

Import Quota Items (IQ) - an application for quota must first be submitted to MITI for approval. This approval plus a foreign exchange application is submitted to a foreign exchange bank, which issues an import licence for presentation to customs when the import arrives.

Measures to secure adequate imports at acceptable prices were initiated in 1975 and include "develop and import" arrangements (maize in Brazil and Thailand), and bilateral and multi-lateral supply agreements (sugar from Australia). Japan also entered into an agreement with the U.S. to supply 3 MMT per annum for three years of soybeans and wheat, and 9 MMT per annum for three years of feedgrains.

Some other non-tariff measures implemented at that time include stockpiling assistance for soybeans (but not rapeseed), since soybeans are a traditional food item (Smith-Wright, 1977); the use of the Livestock

Industry Promotion Corporation as the sole importer of butter; and, the establishment of diplomatic relations with the PRC which has implications for Japanese soybean imports.

Finally, the links between high domestic price support policies and Japan's slowness in lowering or removing non-tariff (and tariff) trade barriers should again be noted.

CHAPTER 4

THE EUROPEAN COMMUNITY OILSEED AND OILSEED PRODUCT MARKET - DESCRIPTION AND POLICIES[13]

4.1 Oilseed Production

There are a wide variety of oilseeds cultivated in the European Community (EC) but in volume terms, rapeseed and olives constitute 90 percent of total production.

Rapeseed is widely grown in the Community and is particularly well suited to the cool temperate climate of France, Germany, Benelux, Denmark, and the U.K. (Table 4.1). Between 1960-63 and 1970-73, average yields increased fairly steadily from 1.3 to 1.9 tonnes/ha. Rapeseed is typically grown on large, highly flexible, diverse and capital intensive farms. Marketing and infrastructure systems are well developed with close liaison between producers and crushers. At present the domestic crop is sold either under contract between the producer or producer co-operative and the crusher, or by open selling through brokers. Although producers have favoured contract production, considerable interregional differences are evident. For example, in the U.K. contract selling is preferred, while in Germany open market selling is the more common outlet.

Some olives are grown in Southern France but the bulk (over 90 percent) are produced in Italy. Olive yields are highly variable with the olive tree bearing only one reasonable crop in every two to four years--the annual average percentage change in EC olive yields between 1966 and 1972 was 34 percent, whereas for other oilseeds it was only seven percent. Most olive farms are small with the production of olive oil often the major source of income for the mainly family farms. The infrastructure development of olive growing regions in Italy is poor, labour usage is high, and opportunities for either farm diversification or alternative employment are restricted. Most of Italian olive production is grown under contract, but many producers still crush the fruit themselves and sell the crude oil direct to refining and producing industries.

The less than ten percent of total EC oilseed production not accounted for by rapeseed and olives include linseed and sunflowerseed, with very small amounts of hempseed, cottonseed, soybeans, mustardseed, poppyseed, sesameseed, castorseed and peanuts.

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[13] Unless otherwise indicated, the information in this chapter is taken from the excellent survey of Paris and Ritson (1977).

TABLE 4.1: European Community Rapeseed Supply and Disposition, 1960 to 1978, 000 MT.

Calendar Year	Supply			Disappearance	
	Production[1]	Imports	Total Supply	Exports	Crush[2]
1960	219.0	92.4	311.4	34.7	276.7
1961	182.0	132.9	314.9	72.2	242.7
1962	225.0	174.5	399.5	112.0	287.5
1963	347.0	161.2	508.2	128.2	380.0
1964	278.0	117.9	395.9	183.3	212.6
1965	429.0	291.6	720.6	174.7	545.9
1966	515.0	363.7	878.7	177.7	701.0
1967	478.0	358.3	836.3	141.3	695.0
1968	629.0	381.2	1010.2	151.2	859.0
1969	696.0	443.5	1139.5	267.1	872.4
1970	720.0	405.1	1125.1	259.6	865.5
1971	836.0	923.3	1759.3	388.5	1370.8
1972	974.0	784.8	1758.8	378.7	1380.1
1973	1080.0	715.8	1795.8	255.0	1540.8
1974	1059.0	416.1	1475.1	476.8	998.3
1975	1203.0	263.4	1466.4	126.5	1339.9
1976	919.0	425.9	1344.9	286.5	1058.4
1977	1075.0	567.4	1642.4	192.5	1449.9
1978	1038.0	323.0	1361.0	199.8	1161.2

[1] From crop harvested previous fall.

[2] Calculated as a residual, includes seed, waste and stock change.

Sources: Production Yearbook, FAO and Foreign Agriculture Circular: Oilseeds and Products, Foreign Agriculture Service, U.S.A.

In the past two decades, the area of all oilseeds (excluding olives) has risen from 370,000 ha. in 1955-57 to 680,000 ha. in 1975-77. With yields almost doubling in the same period, production has risen from 361,000 MT to 1,290,000 MT. France and Germany together account for over 75 percent of the EC non-olive oilseed output, with France contributing almost 60 percent. Oilseed crops play only a small role in the total EC agricultural sector (0.8 percent of value of output), and total EC oilseed production is only one percent of world oilseed output. However, Community rapeseed contributes 14 percent to world production, and Community production of olive oil represents 35 percent of world production with Italy being the world's leading producer.

Despite this impressive increase in domestic supply, demand also has risen rapidly, and the EC is now only ten percent self-sufficient in oilseeds (excluding olives). This ratio has changed only slightly from eight percent in 1955. Imports of oilseeds and products, therefore, are a major component of EC agriculture. Oilseed imports rose from 3.86 MMT in 1955 to 13.38 MMT in 1978. In the three year period 1973-75, the value of EC imports of oilseeds and vegetable oils exceeded the value of imports of all cereals and was about the same as the value of all fruit and vegetable imports. These imports are dominated by one product, soybeans, from the U.S. and more recently Brazil. This is in contrast to the situation some 20 years ago when Community imports showed a much greater diversity in product type and source. Thus, although oilseeds are technically highly substitutable, substitution between various oilseeds and supply sources has in practice not been great. Brazil, however, has recently gained about a 25 percent share of the EC soybean import market. For other products, Canada supplies the bulk of off-shore rapeseed and some linseed; the Philippines, Indonesia, Malaysia and Zaire supply copra and palm kernels; the other South American countries supply peanuts, linseed and sunflowerseed; and African countries in the Lomé Convention supply peanuts, palm kernels, sesameseed and cottonseed. Stocks of oilseed products in the EC usually amount to only one or two months supply.

4.2 Oilseed Crushing

About 95 percent of the EC oilseed supply (domestic production plus imports) is crushed. The remainder is nearly all consumed directly (olives, peanuts and soybeans), with seeding requirements making up the difference.

At the crusher level, the marketing structure for domestic and imported products is inseparable. Further, most crushers have some flexibility to deal with a variety of raw materials and hence make efficient use of variations in relative prices. Econometric estimates of EC oilseed crush demand have been made by Furtan et. al. (1978), Griffith (1979), Surry (1980) and USDA (1978a). EC crushers are typically highly integrated, oligopolistic in structure, and located at the major European ports. Over the period 1955 to 1978, the quantity of oilseeds consumed in the Community has nearly trebled and much of this increase has been in soybeans, (Table 4.2). The reason for this is the rapid growth in demand

TABLE 4.2: European Community Soybean Supply and Disposition, 1960 to 1978, 000 MT.

Calendar Year	Supply	Disappearance	
	Imports	Exports	Crush[1]
1960	2564.3	2.7	2561.5
1961	2032.4	0.2	2032.2
1962	2651.0	1.9	2649.0
1963	2612.4	1.2	2611.2
1964	3188.7	5.8	3182.9
1965	3072.1	1.7	3070.4
1966	3533.6	0.4	3533.2
1967	3720.0	0.2	3719.8
1968	3624.7	2.3	3622.5
1969	3975.0	6.2	3968.8
1970	5689.8	18.4	5671.4
1971	5788.2	16.6	5771.6
1972	6531.1	268.6	6262.5
1973	7118.3	112.5	7005.8
1974	9108.7	15.8	9092.8
1975	8233.5	110.5	8123.0
1976	9203.0	188.8	9014.2
1977	9137.1	120.1	9017.0
1978	11098.7	237.1	10861.6

[1] Calculated as a residual, includes seed, feed, waste and stock change.

Source: Trade Yearbook, FAO.

for high protein oilmeals, which has induced crushers to favour oilseeds with a high meal/protein yield such as soybeans. A by-product has been a long-run tendency for an oversupply of soyoil. Part of the expansion in soyoil consumption seems to have been at the expense of the "tropical" oilseeds (peanuts, palm kernels, copra and cottonseed), while the consumption of rapeseed and sunflowerseed has expanded. EC crushing capacity has also increased rapidly over the 1955 to 1978 period, and this has both affected and been affected by the amount and composition of the Community's supply requirements from exporters.[14]

4.3 Vegetable Oil Consumption

At present, the EC self-sufficiency ratio for all vegetable and palm oils is 25 percent, based on domestically-grown oilseed, and 90 percent if the use of imported seed is included. Imports of crude vegetable oils, therefore, represent only ten percent of domestic demand. LDCs dominate this import market with Brazil supplying peanut oil; other South American nations supplying peanut and sunflower oils; Philippines, Indonesia, Malaysia and Zaire supplying palm, palm kernel and coconut oils; and African nations supplying peanut, palm kernel and cottonseed oils. The U.S. supplies some soyoil, Canada some rapeoil, and the U.S.S.R. and Romania are major suppliers of sunfloweroil.

Although vegetable oil consumption (excluding olive oil) reveals a reasonably strong growth trend during the 1960's (about 4 percent, annually), there has been a levelling off in the rate of increase during the 1970's. For example, total non-olive vegetable oil consumption rose from 2.72 MMT in 1955 to 3.27 MMT in 1965, but rose to only 3.87 MMT by 1977. There has been an increase in the market share of temperate oils, particularly soyoil which increased its share from six percent to 43 percent between 1955 and 1977, and a decline in tropical oils. The palm oils have, however, recovered in the 1970's. Supply and disposition figures for rapeoil and soyoil are given in Tables 4.3 and 4.4. Per capita vegetable oil consumption in the EC is estimated by Moe and Mohtadi (1971) to have an income elasticity of demand of 0.47, but they could find no significant price response. Other demand elasticities are reported in Furtan et. al. (1978), Griffith and Meilke (1980b), Labys (1977), Surry (1980) and USDA (1978a).

In terms of total fats and oils in the EC, consumption has increased from 22.5 kg./head/year in 1956-60 to 29.5 kg./head/year in 1972-74 (or about 3 percent annually). Increased consumption of vegetable oil is almost entirely responsible for this growth since butter and marine oil consumption have remained stable and animal fat consumption has grown by only 1 kg./head/year. This change in consumption patterns has probably been due to changing tastes, and the CAP policy with regard to

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[14] See Stopforth and O'Hagan (1967) for a more detailed but earlier analysis of this sector.

TABLE 4.3: European Community Rapeseed Oil Supply and Disposition, 1960 to 1978, 000 MT.

Calendar Year	Supply			Disappearance	
	Production	Imports	Total Supply	Exports	Domestic[1] Demand
1960	96.9	37.7	134.6	10.8	123.7
1961	85.0	8.9	93.9	7.9	86.0
1962	100.6	12.4	113.1	13.4	99.7
1963	133.0	20.3	153.3	22.5	130.8
1964	74.4	10.8	85.2	26.4	58.8
1965	196.5	23.1	219.6	58.3	161.3
1966	252.4	42.9	295.3	72.6	222.7
1967	257.1	60.5	317.6	71.3	246.3
1968	326.4	108.8	435.2	102.3	332.9
1969	340.2	88.2	428.4	84.0	344.4
1970	346.2	64.6	410.8	83.1	327.7
1971	548.3	90.0	638.3	153.6	484.7
1972	552.0	102.3	654.3	193.2	461.1
1973	616.3	91.2	707.5	270.2	437.3
1974	399.3	77.7	477.0	251.5	225.5
1975	536.0	63.1	599.1	218.5	380.6
1976	423.4	95.3	518.7	224.7	294.0
1977	580.0	103.3	683.3	394.3	289.0
1978	464.5	99.5	564.0	292.5	271.5

[1] Calculated as a residual, includes stock change and waste.

Source: Foreign Agriculture Circular: Oilseeds and Products, Foreign Agriculture Service, USDA.

TABLE 4.4: Eurpoean Community Soybean Oil Supply and Disposition, 1960 to 1978, 000 MT.

Calendar Year	Supply			Disappearance	
	Production	Imports	Total Supply	Exports	Domestic[1] Demand
1960	453.4	107.5	560.9	89.6	471.3
1961	359.7	49.9	409.6	57.6	352.1
1962	468.9	36.8	505.7	77.0	428.8
1963	462.2	70.1	532.3	83.3	449.0
1964	563.4	70.3	633.6	85.1	548.6
1965	543.5	64.1	607.5	85.6	522.0
1966	625.4	47.9	673.3	78.7	594.7
1967	658.4	57.2	715.6	114.8	600.8
1968	641.2	72.5	713.7	124.1	589.6
1969	702.5	121.6	824.1	168.7	655.4
1970	1003.8	240.5	1244.4	288.5	955.9
1971	1021.6	256.7	1278.2	282.4	995.9
1972	1108.5	176.0	1284.5	333.4	951.1
1973	1240.0	188.7	1428.8	404.1	1024.6
1974	1609.4	392.3	2001.8	638.6	1363.2
1975	1437.8	344.6	1782.3	670.3	1112.1
1976	1595.5	323.7	1919.2	611.7	1307.6
1977	1596.0	364.7	1960.7	619.0	1341.7
1978	1922.5	436.1	2358.6	804.3	1554.3

[1] Calculated as a residual includes waste and stock change.

Source: Trade Yearbook, FAO.

butter. Consumption levels, both in total and between different categories do, however, differ substantially between member countries.

Crude vegetable oils from imports or domestic crush are channelled into three major outlets. Some 90 percent is either refined and packaged ready for direct human consumption or further processed by the food industry into margarine, compound cooking fats, or confectionary and bakery products. The remaining ten percent goes to industrial uses--paints, inks, varnishes, lubricants, soaps and detergents.

4.4 Protein Meal Consumption

Consumption of oilcake and meal in the Community has maintained a high level of growth through the period 1955 to 1978, and this increase has been much larger than for vegetable oils. As in the oilseed and oil market, the EC pattern of consumption is heavily weighted in favour of soymeal (now 67 percent, up from 35 percent in 1955-65), and this increase has been at the expense of oilcake produced from copra. Other major oil-meals consumed are fishmeal, linseed meal and peanut meal. In the U.K., peanut meal is the most important, followed by soymeal, fishmeal and cottonseed meal. The growth in consumption of oilcake in the Community has been so rapid that even though domestic oilcake production has increased at a rate of 6.2 percent over 1965-75, there still remains a 45 to 50 percent reliance on imports (Tables 4.5 and 4.6). Again, of the suppliers of imported meal, the U.S. and Brazil supply the bulk with soymeal. South America supplies peanut and sunflower cake; Africa, peanut and cottonseed meal; and Canada, small amounts of rapemeal.

Vegetable oilmeals are used mainly as a livestock feed in the EC, with some 90 percent of supply going into animal rations. Rough estimates indicate oilmeal consumption of 10-15 kg./head of livestock in the U.K. and Ireland, and 25-35 kg./head in Denmark and the EC6. Oilseed meals comprise about 17 percent of total compound feed use and most oilmeal is used in compound feeds, although some is fed direct. The rapid growth in EC oilmeal demand has been encouraged by the development of the Community's intensive livestock industry and the switch to compound feeding; the high income elasticity of demand for meats; and the CAP for cereals which makes oilmeals more price competitive. Estimates of meal demand elasticities are reported in Furtan et. al. (1978), Griffith (1979), Knipscheer and Hill (1980), Surry (1980), Surry and Meilke (1980), and USDA (1978a).

4.5 Oilseed Production Support Measures

The notion of a single Community market for all agricultural products was conceived in the 1958 Treaty of Rome, and this provided the broad guidelines for policy-makers concerned with a CAP for oilseed products. A second influence on the formation of an oilseed product CAP was the existing support and trading systems already in place. For example, in France, Germany and the Netherlands, market support for domestic production through guaranteed prices was already in operation

TABLE 4.5: European Community Rapeseed Meal Supply and Disposition, 1960 to 1978, 000 MT.

Calendar Year	Supply			Disappearance	
	Production	Imports	Total Supply	Exports	Domestic[1] Demand
1960	160.5	102.9	263.4	17.1	246.2
1961	140.8	115.5	256.3	42.1	214.2
1962	166.8	150.5	317.3	73.5	243.8
1963	220.4	137.9	358.4	75.5	282.8
1964	123.3	136.2	259.5	58.8	200.7
1965	316.6	165.8	482.4	121.3	361.2
1966	406.6	232.5	639.1	171.5	467.6
1967	403.1	204.3	607.4	164.3	443.1
1968	498.2	206.4	704.6	164.7	539.9
1969	506.0	242.9	748.9	205.4	543.5
1970	502.0	222.9	724.9	179.7	545.2
1971	795.1	335.0	1130.0	283.4	846.6
1972	800.5	393.0	1193.4	291.0	902.4
1973	893.7	347.4	1241.0	247.4	993.7
1974	579.0	320.0	899.0	263.1	635.8
1975	777.1	274.9	1052.0	174.9	877.2
1976	613.9	344.0	957.9	180.0	777.9
1977	840.9	493.2	1334.2	251.7	1082.5
1978	673.5	469.9	1143.4	237.7	905.7

[1] Calculated as a residual, includes waste and stock change.

Source: Trade Yearbook, FAO.

TABLE 4.6: European Community Soybean Meal Supply and Disposition, 1960 to 1978, 000 MT.

Calendar Year	Supply			Disappearance	
	Production	Imports	Total Supply	Exports	Domestic[1] Demand
1960	2049.2	751.1	2800.3	388.7	2411.6
1961	1625.8	662.4	2288.2	397.6	1890.6
1962	2119.2	1152.4	3271.6	399.2	2872.4
1963	2088.9	1262.4	3351.3	393.7	2957.6
1964	2546.3	1477.3	4023.6	470.2	3553.4
1965	2456.3	1864.2	4320.5	475.9	3844.6
1966	2826.6	2390.5	5217.1	445.7	4771.3
1967	2975.9	2444.4	5420.2	568.6	4851.7
1968	2898.0	2586.2	5484.1	603.5	4880.7
1969	3175.0	2919.0	6094.1	678.5	5415.6
1970	4537.1	3566.0	8103.1	912.1	7191.0
1971	4617.3	4205.1	8822.4	957.2	7865.2
1972	5010.0	4498.1	9508.1	1300.3	8207.8
1973	5604.6	4336.9	9941.6	1792.8	8148.8
1974	7274.3	4761.9	12036.2	2034.4	10001.8
1975	6498.4	4756.7	11255.0	1521.7	9733.4
1976	7211.4	5630.2	12841.5	1686.8	11154.7
1977	7213.6	5646.1	12859.7	1672.4	11187.3
1978	8689.3	7826.1	16515.4	2455.4	14060.0

[1] Calculated as a residual includes waste and stock change.

Source: Trade Yearbook, FAO.

for rapeseed, the support levels being some 30 percent and 55 percent above CIF import prices for France and Germany, respectively. The trading systems employed before 1958 varied somewhat between member states, and protection levels differed considerably, but the basic philosophy was similar--low or zero tariff on oilseeds and oilmeals; high tariffs on vegetable oils to protect domestic crushers; and concessionary tariffs for oilseed products imported from colonial or ex-colonial territories.

In 1963, the European Commission published its Broad Lines of a Common Policy on Oils and Fats which documented the following objectives: (a) increased EC self-sufficiency for oilseeds from the then ten percent by farm income support, and setting higher tariffs on imported oilseeds; (b) abolish national barriers to trade between members and apply a Common External Tariff (CET) to trade with third countries; and (c) as a consequence of commitments made at the concurrent Yaoundé Convention, give tariff preferences and other financial assistance for oilseed products entering the Community from the 18 ex-colonial "Associated African States" (AAS).[15]

This common organization for olives, rapeseed and sunflowerseed was adopted, with some minor adjustment in detail, in September 1966. The system for farm price supports was instituted in the 1967-68 crop year. The CET on seeds and meals was set at zero and on oils, there was an ad valorem tariff of 3 to 20 percent depending on the nature and degree of processing of the oil. July 1, 1968 was set for full application of the CET although the shift had been in progress since 1961. The AAS gained duty free access for all oils, except olive oil, and a financial aid scheme for oilseed product exports to the Community.

4.5.1 The CAP for Oilseeds

The major distinguishing feature of EC domestic oilseed regulations is that producers receive direct price subsidies rather than, as is the case with most CAP products, a minimum import price maintained by a variable import levy (VIL) (see for example Hillman, 1979, pp. 81-88).

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[15] When the Treaty establishing the European Community was ratified in 1958, certain states (especially France and Belgium) had special relations with a number of overseas countries. After these countries became independent, a Convention governing their association with the Community was signed in 1963 in Yaoundé--the capital of Cameroon. This group became known as the "Associated African States". In general, the Yaounde Convention proposed free trade between the EC and the 18 AAS countries, but the EC did not grant completely duty free access for certain agricultural products originating in the AAS, although these products did enjoy more favourable access than that accorded third countries. (AAS signatories were Burundi, Cameroon, Central African Republic, Chad, Congo, Benin, Gabon, Ivory Coast, Madagascar, Mali, Mauritius, Nigeria, Rwanda, Senegal, Somalia, Togo, Upper Volta, Zaire.)

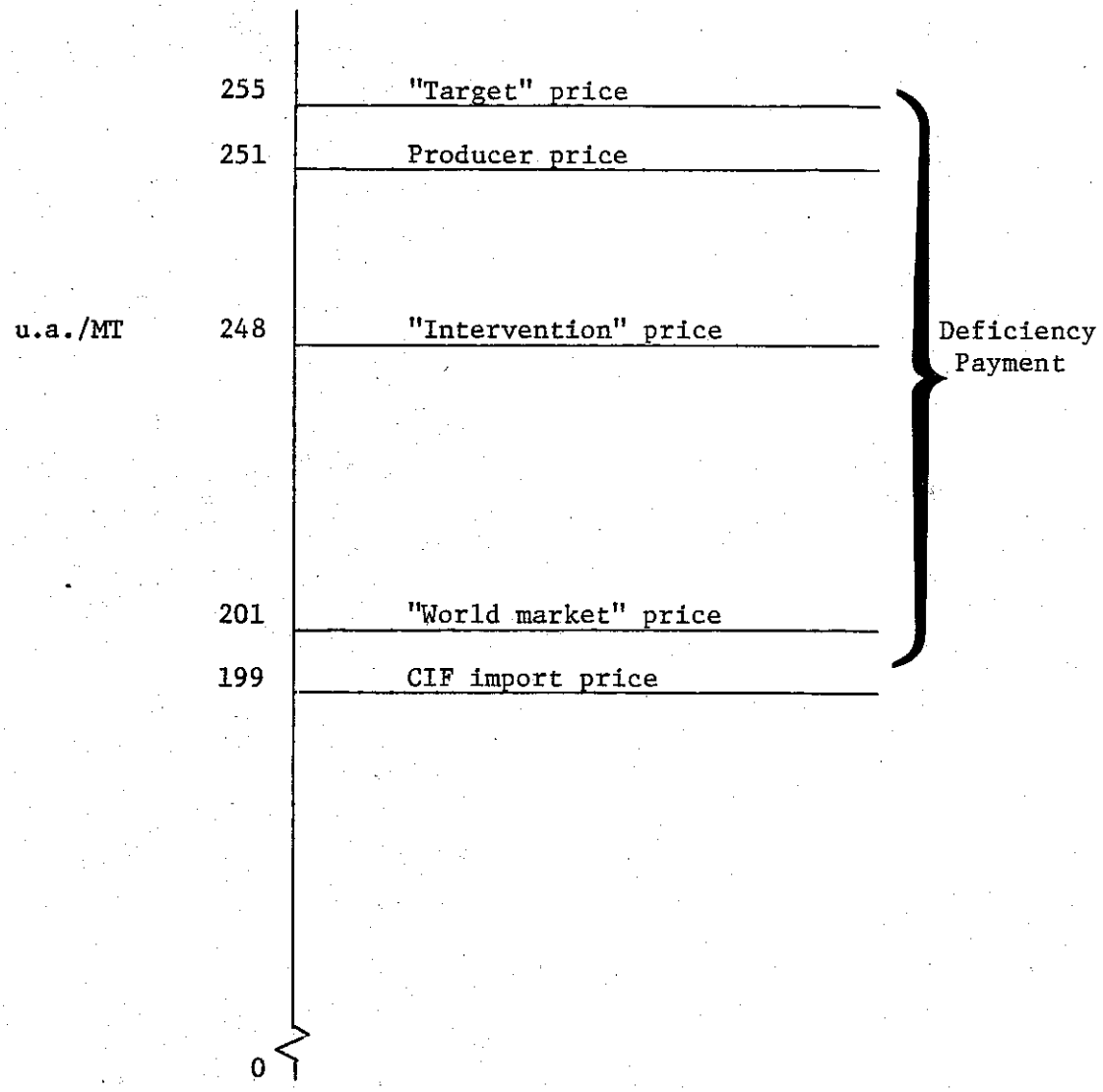
As a result, prices for oilseeds in EC markets tend to correspond quite closely to world market prices. For rapeseed, the subsidy is a deficiency payment which varies according to the level of world prices, with a provision for intervention purchases.

The reasoning behind this different approach to farm support is simple. Unless raising tax revenue is a major objective, it makes little sense to attempt to support farm incomes by raising price if domestic production accounts for only a small proportion of total consumption--the case of oilseeds in the community. Oilseeds in Western Europe have, therefore, always been viewed more as a raw material imported for domestic processing than a product of domestic farming. As a consequence, it was natural to allow duty free access to oilseeds and protect crushers by tariffs on oils. When appropriate, domestic oilseed growers could be aided by direct subsidies without placing too much of a burden on Treasuries. Prior to the CAP, all EC members did, in fact, protect domestically produced fats and oils. Producers of rapeseed in France and Germany were guaranteed higher prices than they could obtain by selling in competition with imported rapeseed. Prices of all vegetable oils and edible animal fats in Italy were maintained well above world levels to protect domestic olive growers. Domestic prices of butter were kept above import prices in all countries except the Netherlands, and Germany also protected lard and edible tallow producers (FAO, 1962).

The CAP for rapeseed operates as follows (Bell, 1975)--the procedures are slightly different for some of the other oilseeds under the CAP. Two prices are set annually: (a) the target price, which is "fixed at a level which is fair to producers, account being taken of the need to keep Community production at the required level": and (b) the intervention price, "which guarantees that producers will be able to sell their produce at a price which, allowing for market fluctuations, is as close as possible to the target price, and shall be equal to the target price reduced by an amount large enough to allow for these fluctuations" (EEC, 1966). The target and intervention prices are adjusted each year in line with cost increases. Thus they rose by 3.5, 4.0, 1.5 and 4.0 per cent in the years 1977/78 to 1980/81. However since the price rises are set in units of account (see 4.7.1), the effects of the "green rates" ensure a greater price rise in countries with weak currencies than in countries with strong currencies.

The basic intervention price is set for Genoa, the centre of the area where rapeseed is in shortest local supply, and secondary intervention prices are set at other centres so they are lowest in the major cropping regions. The target price is set above the intervention price. The world market price is determined weekly in Brussels and takes into account not only the CIF import price at European ports but also trends in world prices for competing oilseeds such as soybeans and sunflowerseed, and the profit obtained by crushing these alternatives. These other factors are included to ensure that the crushers do not suddenly switch away from rapeseed. This scheme is outlined in Figure 4.1.

Figure 4.1: The CAP for Rapeseed, 1975-76



Source: Parris and Ritson (1977)

When the world market price is below the target price, as has usually been the case, a subsidy equal to the difference is paid for rapeseed harvested and processed in the Community. The subsidy, or deficiency payment, may be paid to producers but usually it is the crusher who receives the subsidy since most producers would rather avoid the paperwork involved in making the claim. Target and intervention prices are set at the beginning of the marketing year (July-June), whereas the world market price is determined each week. Thus, the deficiency payment varies through the year. Further, because of quality variations and transport costs, the deficiency payments vary between regions and between producers.

Intervention purchases of rapeseed have been extremely rare, and then only in small quantities. Since the Community is a net importer of rapeseed, a producer who opts to claim the deficiency payment himself will be able to sell to a crusher at a price competitive with imported supplies, and so receive (with the subsidy) a return which is approximately equal to the target price. If the producer lets the crusher claim the subsidy, the processor is likely to pay less than the target price as compensation for making the claim. But competition among crushers together with the producer's option of claiming the subsidy himself should prevent the price from falling much below the target price.

As noted above, prior to July 1967, the French and German support prices for rapeseed were some 15 percent below the intervention price that was implemented. This increase in producer prices, plus some improvements in processing, induced Community rapeseed production to increase by some 46 percent in the years 1966-68.

There have been four amendments to the basic oils and fats regulations, but these have left the fundamental principles of the CAP unchanged. One important policy rationalization has occurred for rapeseed. During the 1970 International Rapeseed Conference, it was claimed that because of its typically high erucic acid content, rapeoil in human food could be dangerous to health.[16] As over 90 percent of EC rapeoil is used in food stuffs, this announcement caused great concern. From 1973 there was rapid conversion from high erucic acid rapeseed (HEAR) to low erucic acid rapeseed (LEAR) varieties, such that by 1975-76, LEAR represented 65 percent of Community rapeseed output. Then, in 1976, the Commission listed the erucic acid content of oils for human consumption and in July 1979 prohibited the sale of food oil and fat unless the erucic acid content was less than 5 percent. In addition, rapeseed must contain no more than 10 percent erucic acid to be eligible for subsidy. Finally, because there is a specific demand from the EC chemical industry for around 10,000 MT/year of HEAR rapeoil, a guarantee is retained for some producers of HEAR by means of contracts between producers and the processors concerned.

Since its inception in 1966 the CAP for oilseed products has been

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[16] Canada's role in genetic research to overcome this deficiency is mentioned in Agriculture Canada (1977).

extended to cover more oilseeds and to include the three new member states. Linseed and soybeans have been added with mechanisms similar to those of rapeseed and sunflowerseed, but while linseed output has shown phenomenal growth, soybean production is still very low and unlikely to get much larger (Surry, 1980). The transition of the three new member states toward full acceptance of Community oilseed regulations involved the acceptance of the internal price system for all oilseed products in six transitional stages which concluded January 1978 (with some exceptions such as butter). The new members already relied heavily on deficiency payment schemes, so the adjustment (for oilseeds at least) was not too difficult.

The CAP for oilseeds, by altering price ratios with competing crops, has undoubtedly had an important impact on domestic supplies of some oilseeds. After establishing a CAP for linseed in 1970, the incentives provided made the crop so attractive that by 1975-76, the Community was forced to introduce new market support mechanisms to control output. Further, since the membership of the U.K., price incentives under the CAP for rapeseed seem to have been instrumental in achieving a U.K. growth rate for rapeseed output well above the rest of the Community. From 1971-72 to 1976-77, the average market price for rapeseed in the U.K. increased from about £50/MT to about £140/MT, and over the same period, U.K. self-sufficiency in the crop rose from 10 to 88 percent (U.K. Government, 1977).

4.6 Tariffs

The Common External Tariff (CET) for vegetable oilseed products was arrived at by July 1967 giving free entry for all oilseeds (except olives for oil which have a variable import levy (VIL) plus a seven percent tariff), and all oilcake and meal, with a graduated tariff rate for vegetable oils according to the degree of processing and intended end use:[17]

5 percent for crude industrial oils;
8 percent for refined industrial oils;
10 percent for crude edible oils;
15 percent for refined edible oils;
VIL and suspended tariff for olive oils.

It is possible to distinguish five major phases in the development of the present pattern of tariffs for vegetable oils.

(i) 1958-1967: the transitional period for the original EC6 to align their respective national tariffs to the CET. This was done in three stages beginning in 1961, and generally involved an increase in the tariff rates for Benelux and Germany, and a

[17] There are some departures from these generalizations (e.g., palm oil). Further, the U.S. ensured that the duty-free bindings negotiated on soybeans and soymeal in the Dillon Round were included in the CET.

reduction for France and Italy.

(ii) 1967: the full introduction of the CET according to the rates specified above. An important implication of the choice of import tariffs for oilseed products (rather than VIL) is that this product group is one of the few agricultural commodities produced in the Community which has rates of protection bound under GATT. This binding has placed some constraints on the EC flexibility in dealing with other problems, particularly the dairy surplus. To date only one change has been made in the above tariff schedule--in the Kennedy Round a reduction from nine to six percent was agreed for crude edible palm oil, effective January 1974. A related concession given at the same time was the abolition of the two percent tariff on tallow. No concessions were given in the Tokyo Round.

(iii) 1967 to date: a number of concessionary allowances on tariffs have been made for various associated countries. The Yaoundé Convention of 1963 was followed by a second, follow-on Convention of the same name which was in force from July 1969 to January 1975. The treaty concerning U.K. accession to the EC signed in 1972 made possible the opening of negotiations between the Community and certain Commonwealth countries, and the first Lomé Convention was signed in 1975. Following the concepts of Yaoundé, the then 53 African, Caribbean and Pacific States (ACP) signing Lomé are granted complete removal of the CET for vegetable oils, the adoption of STABEX (stabilization of export revenues for a number of commodities which include coconut, palm and peanuts and their oil and meal derivatives), and a development aid fund to induce expansion of oilseed production and processing in the ACP.[18] The removal of the CET does not apply to the olive oil levy but this is of little consequence to the ACP countries. In 1979 a new Lomé Convention was concluded covering the period 1980-1985 (FAO, 1979).

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[18] The 53 Lomé I signatories comprise the 18 Yaoundé countries; 21 Commonwealth States from Africa (Botswana, Gambia, Ghana, Kenya, Lesotho, Malawi, Nigeria, Sierra Leone, Swaziland, Tanzania, Uganda and Zambia, the Caribbean (Bahamas, Barbados, Grenada, Guyana, Jamaica, Trinidad and Tobago), and the Pacific (Fiji, Tonga, Western Somoa); six other African States (Equatorial Guinea, Ethiopia, Guinea, Guinea-Bissau, Liberia and Sudan); and later, six others (Comores, Papua-New Guinea, Principe and Cape Verde Is., Sao Tomé, Seychelles and Surinam). For a more detailed account of Lomé I see Gruhn (1976b), and for Lomé II see OECD (1980).

The list of products benefitting from free entry into the Community was enlarged, and preferential access given to most other products. Of most interest to the oilseed sector is the expansion of STABEX to include cottonseed and all oilcakes. The Community also has agreements with the Mediterranean Associates (Algeria, Greece, Israel, Morocco, Spain, Tunisia and Turkey) that involves variable concessions relating to olive oil levies. Finally, the Community has numerous bilateral preferential agreements with LDC countries not included in Lomé, but none of these agreements offer direct trade concessions to vegetable oil imports though many of the countries involved are important oilseed product exporters to the EC.

(iv) 1974 to date: Following the discussions in UNCTAD beginning in 1964, a program relating to a Generalized System of Preferences (GSP) was approved in 1970. The EC instituted GSP in 1971, although oilseed products were not included until 1974. This provides a range of tariff concessions for vegetable oil imports from the over 100 countries signing the scheme (EC, 1977a). The system is, however, still restrictive in its impacts for LDCs. Peanut oil, the major export earner for many LDCs, is excluded as is cottonseed, linseed, olive and sunflower oils. Those concessions that have been made tend largely to be at the lowest stage of the processing chain and hence attract the lowest premiums. Finally, tariff quotas are often in effect, which means the imported good attracts the full tariff rate if imports exceed some quota level. Parris and Ritson (1977, p. 64) estimate that only four LDCs (Brazil, Indonesia, Malaysia, and Philippines) benefit to any large degree from GSP for oilseeds and oilseed products.

(v) 1973-1977: The transitional period for the three new member states. This involved elimination of intra-Community trade duties, introduction of the CET by 1977, and granting of trade preferences through acceptance of Lomé, the Global Mediterranean Policy, and the GSP scheme. Also required was the phasing out of the U.K.'s own GSP scheme (implemented 1971), and its Commonwealth Trade Preferences on oilseeds and vegetable oils. However, the Community did annex a Joint Declaration of Intent to the U.K. Accession Treaty, which was seen as an attempt to harmonize EC policy towards those independent Asian Commonwealth Countries (India, Pakistan, Bangladesh, Sri Lanka, Malaysia and Singapore) which were left out of Lomé. Palm oil and coconut oil were the two products most affected by these concessions. The U.K. tariff vis-à-vis third countries was aligned

with the CET in four stages beginning January 1, 1974, while Denmark eliminated tariffs on agricultural products solely protected by duties in five steps beginning July 1, 1973.

4.7 Non Tariff Measures

"Although opinions differ, most experts regard the trade liberalization effects of EC tariff changes and concessions as relatively minor" (Parris and Ritson, 1977, p. 40). There is also a growing awareness that while tariff barriers are being dismantled, non-tariff measures (NTM) are taking their place. The impact of NTM on the supply of imports into the EC is an area little explored by economists. However, with respect to the oilseed sector, several examples will give some idea of the types of instruments involved.

First, Community regulations provide for the imposition of other kinds of compensatory taxes on: (1) imported oilseeds or oilseed products found to endanger the Community market for the same or a substitute product; and/or (2) imports of marine or vegetable oils if the EC finds direct or indirect evidence of an export subsidy (USDA, 1972). The first of these taxes has never been applied, but compensatory levies have been applied on different occasions to rapeoil considered to be abnormally cheap in relation to the price of the corresponding oilseed in the country or origin. Further, compensatory levies of about $30/MT were imposed in 1967-69 on Eastern European sunflower oil exports to the Community to protect domestic crushing margins and at the 1978 meeting of Ministers the Commission was asked to look at the possibility of applying countervailing duties on soymeal imports to offset the Brazilian export subsidies.

Second, there was the skim milk powder (SMP) import deposit scheme. With the CAP for dairy products stimulating milk production and decreasing demand for SMP domestically, coupled with declining prices for competitive protein sources, surplus stocks of SMP rose steadily between 1973 and 1976. In March 1976, the SMP import deposit scheme came into effect for imported and domestic protein production. In essence, the scheme involved the payment of a deposit by the feed compounder of 30-35 u.a./MT of oilcake, adjusted for protein content, which could be claimed back only after 50-60 kg of SMP had been purchased from the Community's intervention stocks. SMP was then being sold at the subsidized price of 522 u.a./MT, which was 380 u.a. below the basic SMP support price. In addition to this measure, a subsidy of 3 u.a./MT/month on 250,000 MT of soybean equivalent protein was paid by the EC as a storage aid, both to assist the feed industry to adjust to the SMP scheme and to improve the Community's stock position of high protein feed. The scheme was terminated October 1976, and the Commission claimed that the SMP scheme did not appear to have any effect on either the volume or price of imported protein feeds into the community.

Third, there is the provision of export restitutions or subsidies for EC producers or processors who wish to sell products covered by the CAP in third country markets. These subsidies are the difference between

the actual EC price (the target price) and the prevailing world market price (Hillman, 1979; Swinbank, 1980). These subsidies are not likely to be used for rapeseed since the EC domestic price closely corresponds to the CIF Rotterdam price.

Fourth, NTM exist on some competing products or in some member states. The CAP for cereals, dairy and livestock products are NTM which in this case help rather than hinder demand for oilseed products. Butter imports face a VIL and a licence with a deposit is required, while lard for food is also a VIL item. France has state trading for these products. A licence is required for imports of vegetable oils into Italy because of extra crushing subsidies paid there, and up until 1971 they also levied an administrative fee on all imports (USDA, 1972). There is also the VIL, import licence and possibility of compensatory levy applied to olive and olive oil trade.

Finally, two NTM proposals illustrate the flexibility the Community has in dealing with domestic and trade policy issues. A proposed tax on vegetable oils is a measure directed toward reducing the competitive edge of the oilseed sector, stimulating butter demand, and so assisting in remedying the dairy market imbalance. The Commission in 1976 considered that a tax levied on both home production and imports of vegetable and marine oils and fats would help to mitigate the imbalance in prices between butter and margarine. The tax would have meant a charge of 10 to 12 percent on the value of crude oil, and it was proposed to implement it in April 1977. Due to objections from crushers, feed compounders, the medical profession, some member governments and the U.S., the scheme was formally withdrawn but apparently still retains some devotees.

The EC is currently threatening import restrictions on starch "grain substitutes", such as cassava (manioc), maize gluten feeds, vegetable and fruit pulp, molasses and various cereal brans. Even though these products face levies of up to eight percent, their very low initial cost makes them very competitive in livestock compound feeds. For example, in mid-1978, in the U.K., the equivalent of a "barley unit" comprising 75 percent cassava and 25 percent soymeal cost about a quarter less than the barley itself. With imports of cassava rising rapidly, EC cereal producers are pressing for action to strengthen their positions. The impact on the oilseed sector is that quotas on starch exports would lead to complementary reductions in the demand for high protein meals since domestic feedgrains would have a larger share of the compound feed market. Swinbank (1980, p. 429) reports that Thailand (the major supplier) has agreed to voluntarily limit exports of manioc to the EC.

Two of the new member states also maintain several NTM affecting oilseed product trade. Rapeseed imports into Ireland face discretionary licences designed to protect domestic output, and copra, linseed, palm kernel and peanut meals are also subject to licencing. In Denmark, rapeseed imports face a global quota, and licences are required for imports of butter, lard and rapeseed. Imports of peanuts and crude peanut oil are only permitted upon issuance of a permit regarding an undetectable content of aflotoxin.

4.7.1 Oilseed Products and Green Money[19]

One of the basic principles of the CAP is the harmonization of the prices of agricultural products throughout the Community. These common prices were originally fixed in terms of the Community's "unit of account" (u.a.) by agreement between the Ministers of Agriculture of the member nations. The u.a. had its value fixed in relation to gold, and the currency of each member country had an official parity relationship to gold, and hence to the u.a.

After only a few years of operation, the system of common farm prices broke down. First, there were several official gold parity changes in member country currencies. These changes should have had a more or less automatic effect on domestic agricultural prices. In the case of a devaluation, the prices expressed in local currency rise, while for a revaluation they fall. A rise in agricultural support prices that is explicit in an official currency devaluation disadvantages domestic consumers, while a fall in support prices via a revaluation disadvantages domestic producers. Following the French devaluation of August 1969, the government did not want food prices to rise by the full extent implied by the devaluation, and agricultural support prices were maintained at the old rates by special national levies. Conversely, following the DM revaluation of October 1969, the German government did not want farm prices to fall by the full extent implied by the revaluation, and they were maintained at the old rates by special national subsidies.

Further, following these actions, the official parity no longer corresponded to the value of the currency applied to agricultural prices, and this led to a disparity between the agricultural price levels guaranteed in the various member countries. Producers in a country which had devalued (France) would then be inclined to direct their products toward an intervention centre in a country which had revalued (Germany), as this would give them a higher return in terms of their domestic currency.

This imbalance necessitated a system of "monetary compensation amounts" (MCA's) to offset the difference between the official parity rates and the rates applied under the CAP. Thus France charged a tax on exports and granted subsidies on imports, while Germany subsidised exports and taxed imports.

Second, there was the decision of individual member countries to allow their exchange rates to float after the $U.S. devaluations of 1971/72. This further complicated the operation of the CAP, as all original member states (except Denmark), because of market revluations or devaluations, protected domestic producers or consumers respectively from the full implications of these exchange rate changes. Thus, since all countries then had different intervention prices, the system of MCA's was extended.

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[19] For more detail, see Irving and Hearn (1975), Sprott and Dickie (1976), Conable (1978), Heidhues et. al. (1978), Ritson and Tangermann (1979) and Swinbank (1980).

Devaluing countries charged MCA's on exports and granted MCA's on imports; revaluing countries taxed imports and subsidised exports. The MCA's were also applied to trade with non-members and were either added to or deducted from import levies or export restitutions.

Third, the operation of the frontier MCA system became increasingly complicated as a result of the enlargement of the Community and the frequent differences between CAP parities and market parities of member countries since 1973. Farm support price levels, in terms of national currencies lost their comparability and the free flow of agricultural products within the Community was impeded. These difficulties led to the adoption of a system where agricultural support prices in national currencies are derived from "representative" or "green" exchange rates which are more in line with actual conditions in foreign exchange markets. These green rates replaced the informal system of producer subsidies and levies used to compensate for currency changes. These green rates were first set for the currencies of the three new members, then for the lira and guilder, and in 1975, for the currencies of all member countries (Figure 4.2). It is evident that green rates have been used to reduce the MCA's applicable on those currencies which have significantly devalued.[20] Since the effect of adjusting the green rates is similar to an adjustment against gold, common farm prices expressed in national currency have risen in those countries with relatively weaker currencies. However, the "green DM" maintains agricultural prices in Germany higher than is justified by the market value of the DM, and the "green pound" holds U.K. prices substantially lower than they would be if calculated at the market exchange rate. Swinbank (1980) calculates as of July 1979 that the German CAP support prices were some 19 percent above comparable U.K. prices. So these green exchange rates produce price levels for agricultural products different from those which would apply if everyone used fixed parities or market values for calculating prices. This situation has led Heidhues et al. (1978), among others, to interpret the current MCA system as quite a radical departure from the concept of a "common" market.

Apart from manipulation of the green rates, there have been several other attempts to reduce the impacts of the MCA system. In 1975, the u.a. was linked to the joint float of strong EC currencies rather than gold, so as the joint float fluctuated against the $U.S., so did the u.a. The effects of this change can be seen in Figure 4.2, but it is obvious that quite large differences still existed in some countries between the market and green rates of exchange. The 1978 meeting of Ministers thus agreed to progress toward elimination of the MCA system, and in 1979 farm prices were linked to the European Currency Unit (ECU) rather than the u.a. Since the ECU is based on a "market basket" of all EC currencies, it is much closer to market exchange rates than the u.a. Thus, the CAP support prices should also be much closer together in market terms, and the need for MCA's should

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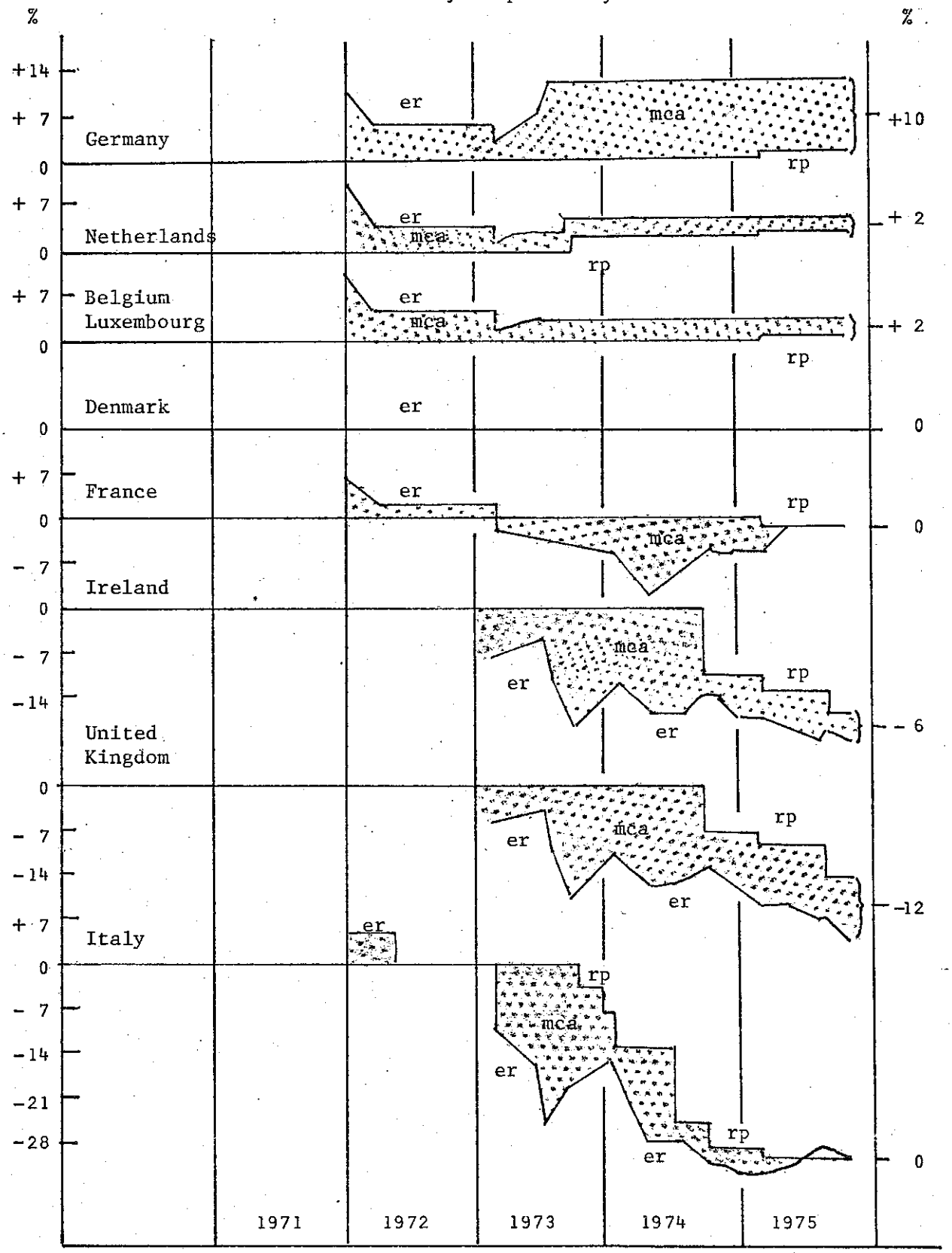
[20] The farm Ministers have to be concerned with both the u.a. price for the next season and the green rates to translate this price into national currencies.

FIGURE 4.2: Adjustments in EEC Representative Exchange Rates and in Monetary Compensatory Amounts



mca: monetary compensatory amounts
er: exchange rates
rp: representative 'green' rates

Sources: Commission of the European Communities Information. Economy and Finance, March 1975, and The Agricultural Situation in the Community, 1975.

diminish. Nevertheless Ritson and Tangermann (1979) argue that MCA's allow the various EC member states to pursue important domestic agricultural policy objectives and that they are likely to persist for sometime.[21]

It is obvious from the above that MCA's on intra-Community trade are needed when the CAP operates in such a way as to lead to differences in market prices between member states, such as for example, the VIL-induced threshold prices for cereals. The Community, however, does not (except for olives) attempt to support the market price for oilseeds--market prices throughout the Community are closely related to actual world trading prices. Thus, it is legitimate to characterize the CAP for oilseeds as one that provides a single market, and for most purposes, it is sufficient to quote u.a. prices. It has, therefore, not been necessary to apply MCA's on intra-Community oilseed trade.

However, in the case of oilseeds, it is producer subsidies which are converted at green rates, and this has two consequences. First, oilseeds become more attractive, vis-à-vis competing farm enterprises, in the "low price" countries such as the U.K. (lower priced because the green pound does not allow the full extent of the devaluation to be reflected in higher farm prices), compared to the "high price" countries such as Germany. This occurs because, although the use of green rates means that the extent to which oilseed growers benefit from subsidies varies throughout the Community, the disparity is not as great as when full support prices are converted at green rates. So, in devaluating countries such as the U.K., the price increase for oilseeds has been relatively greater than that for cereals. In revaluating countries such as Germany, the price decline for oilseeds has been greater than that for cereals.

A second and dependent consequence for the oilseed sector is that the extent to which oilseed products are price competitive in end-uses varies throughout the Community. In Germany, for example, high feedgrain prices make soymeal a much more competitive substitute for cereals than in the U.K.; thus, German livestock rations include a very high proportion of oilmeal.

The nature of the CAP for non-olive oilseeds means that MCA's are unnecessary, but there is one case where they may be useful. With intervention prices for rapeseed converted at green rates, it is possible that a particular u.a. subsidy payment could mean that intervention was more attractive in "high price" countries. However, as pointed out previously, intervention is highly unlikely.

4.8 Security of Supply

The rapid growth in demand for high protein feeds has led to a heavy reliance on the U.S. as the main supplier of soybeans and soymeal.

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[21] Ritson and Tangermann (1979) contains a discussion of the welfare impacts of MCA's.

This reliance on virtually one supplier was brought to the fore in 1973 with the brief U.S. soybean and meal export embargo.

This occurrence led to a more detailed examination of supply security, and oilseed products have been given particular emphasis due to the low levels of domestic self-sufficiency and the much greater importance to the Community's economy of oilseed products in comparison with other products of low self-sufficiency. New policy initiatives have been emerging, such as greater domestic protein output; the substitution of other forms of domestically produced high protein feeds for imported proteins; and the diversification, and the achieving of greater reliability, in import supplies. For example, hay and field bean production have been stimulated by assistance measures, and soybeans have been placed under the CAP in an effort to expand output (Surry, 1980). However, production remains almost negligible because of climatic and varietal constraints. The SMP import deposit scheme was an attempt to make feed manufacturers use more domestically available protein than imports. Import supplies have been diversified to some extent by bilateral trading agreements, most notably with India for supplies of peanut meal. Finally, some attempt has been made to improve Community stocking policies and to participate in negotiations in international fora which aim to improve the overall performance of world commodity markets.

CHAPTER 5

THE U.S. OILSEED AND OILSEED PRODUCT MARKET - DESCRIPTION AND POLICIES[22]

5.1 Oilseed Production

The U.S. produces five major oilseed crops--soybeans, cottonseed, peanuts, sunflowerseed and flaxseed. Edible vegetable oils in the U.S. are derived almost exclusively from the first four of these crops. Another minor oilseed grown is safflower seed, while large amounts of corn oil, animal fats (butter, lard and edible tallow), marine oils and fishmeal are also produced. Total oilseed production rose from 30.4 MMT in 1965 to 47.4 MMT in 1975 and 69.5 MMT in 1979. This expansion was generally characterized by an expansion in export markets for oilseeds and oilseed products.

U.S. soybean acreage has risen substantially, from less than 5.6 M ha. in the early 1950's to over 17 M ha. in 1971-72 and a record 28.5 M ha. in 1979-80. The U.S. now ranks as the world's foremost producer, consumer and exporter of soybeans and soybean products. Most U.S. soybeans are grown in the Corn Belt States, with Illinois being the largest producing State, but the Corn Belt share of total U.S. area has fallen from near 70 percent in the early 1950's to just over 50 percent in the late 1970's. The growth region over this time period has been the Delta States, with its share of total acreage increasing from seven percent in 1950 to 19 percent in 1978-79.[23] Yields have increased moderately over time from about 1.3 MT/ha. in the early 1950's to about 1.8 MT/ha. in the mid-1970's. With these yield advances, production has increased dramatically from 8.31 MMT in 1950 to a record 50.9 MMT in 1978-79 (Table 5.1). Major competing crops with soybeans are corn, other feedgrains and hay in the North, and cotton, feedgrains and roughage in the South.

The farm value of soybeans has risen proportionately with output from 750 mil. dol. in the early 1950's to 3.5 bil. dol. in 1971-72. With the unprecedented prices of 1973-75, soybean farm value exceeded 8.75 bil. dol. in 1973-74 and in 1977-78 totaled nearly 12.5 bil. dol. Soybeans contributed some 14 percent of all crop commodity receipts and six percent of all farm cash receipts up until 1973, and since 1974, these percentages have remained at 18 and 10, respectively. Soybeans are now

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[22] For a more detailed though now dated account, see Houck, Ryan and Subotnik (1972).

[23] See Houck et. al. (1972), Boutwell et. al. (1975) and Houck and Subotnik (1969) for analyses of soybean production in different regions of the U.S.

TABLE 5.1: U.S. Soybean Supply and Disposition, 1958-59 to 1978-79, 000 MT

Crop Year Beginning Sept. 1	Supply			Disappearance			
	Beginning Stock	Production	Total Supply	Exports	Crush	Feed, Seed, Waste	Ending Stock
1958-59	1170.3	15785.0	16955.3	2857.6	10859.0	843.7	2395.0
1959-60	2395.0	14505.9	16900.8	3810.2	10722.9	952.5	1415.2
1960-61	1415.2	15104.6	16519.8	3674.1	11049.5	1061.4	734.8
1961-62	734.8	18479.3	19214.1	4055.1	11729.9	1306.3	2122.8
1962-63	2122.8	18207.2	20330.0	4926.0	12872.9	1279.1	1251.9
1963-64	1251.9	19023.6	20275.5	5089.3	11893.2	1469.6	1823.4
1964-65	1823.4	19078.1	20901.5	5769.7	13036.2	1279.1	816.5
1965-66	816.5	23024.3	23840.8	6831.1	14641.9	1388.0	979.8
1966-67	979.8	25283.2	26263.0	7130.5	15213.5	1469.6	2449.4
1967-68	2449.4	26562.3	29011.7	7266.5	15676.1	1551.3	4517.8
1968-69	4517.8	30127.6	34645.3	7810.8	16492.6	1442.4	8899.5
1969-70	8899.5	30835.2	39734.6	11784.3	20057.8	1632.9	6259.6
1970-71	6259.6	30671.9	36931.4	11811.5	20683.8	1741.8	2694.3
1971-72	2694.3	32005.4	34699.8	11348.9	19622.4	1769.0	1959.5
1972-73	1959.5	34590.9	36550.4	13036.2	19649.6	2231.7	1632.9
1973-74	1632.9	42102.4	43735.3	14669.2	22343.9	2068.4	4653.8
1974-75	4653.9	33094.0	37747.9	11457.7	19078.1	2177.2	5034.9
1975-76	5034.9	42102.4	47137.2	15104.6	23541.4	1823.4	6667.8
1976-77	6667.8	35053.6	41721.4	15349.5	21500.2	2068.4	2803.2
1977-78	2803.2	47953.7	50756.9	19078.1	25228.8	2068.4	4381.7
1978-79	4381.7	50893.0	55274.7	20493.3	27705.4	2340.5	4735.5

Source: Fats and Oils Situation, E.S.C.S., U.S.D.A., May 1980.

second only to corn in terms of farm value of crop production.

Domestic use of U.S. soybeans has risen steadily, but the fastest growing outlet has been the export market (Table 5.1). Total exports have risen from only 2.7 MMT in the late 1950's to some 20.5 MMT in 1978-79, and the export share of total supply has risen from 17 percent in 1958-59 to 40 percent in 1978-79. Major outlets for U.S. soybean exports have been Canada, EC, Spain, Japan and Taiwan.

U.S. peanut production is controlled by a government peanut program (Clark, 1976; Nieuwondt et. al., 1976). An acreage allotment of about 0.64 M ha. has changed little in the past 20 years, and peanut acreage has remained at the allotted level during the period since 1956, but yield improvements (about 4.5 percent annually) have resulted in production gradually increasing from about 0.88 MMT in 1963-64 to 1.80 MMT in 1978-79.

The major producers of peanuts are the PRC, India, and in West Africa; U.S. production has generally amounted to less than 10 percent of world output. About 50 percent of world output originates in India and the PRC, and climatic variations in these two countries account for much of the variation in world production. However, most of the peanuts produced in these regions are consumed domestically, so they have little impact on world markets. The West African countries are next most important peanut producers, and during the 1960's, it was the major exporting region. However, the severe drought of the early 1970's and increased domestic consumption has reduced this area's current importance as an exporter. For example, from 1960 to 1968, about 2 MMT entered trade annually, or about 13 percent of output, but by the early 1970's exports were only 1 MMT and most of the loss was in exports to the EC for crushing.

U.S. exports averaged under 100,000 MT annually up to 1971. The great majority of these were edible peanuts sold to Canada, and the U.S. had a very small role in world trade of peanuts for crushing. From 1971, U.S. exports increased, to 360,000 MT in 1974, and the U.S. share of total exports rose as well. Canada still takes about 130,000 MT annually for edible purposes, mainly from the U.S. since supplies are guaranteed aflotoxin-free. Other major importers are the EC and Japan.

U.S. cottonseed production is controlled by acreage allotments on cotton production. Cotton area harvested fell from over 6 M ha. in the early 1960's to around 4.4 M ha. in the early 1970's and to 3.5 M ha. in 1975-76 but has since increased to 5.2 M ha. in 1979-80. Production of cottonseed declined slowly from about 5.5 MMT in the early 1960's to 2.9 MMT in 1975-76. However, in 1979-80 output rose to 5.2 MMT, the largest crop since 1965-66. Yields have been fairly stable at around 900 kg/ha.

About 85 to 90 percent of U.S. cottonseed production is crushed domestically, so cottonseed exports have been very small in relation to production, peaking at 55,000 MT in 1975-76. The major and only consistent export market for U.S. cottonseed has been Mexico, with Guatemala and Spain being other minor outlets. Other major producer-exporters are the U.S.S.R.,

Sudan and Nicaragua.

Sunflowerseed production in the U.S. has risen rapidly from less than 50,000 MT in the mid 1960's to a record 3.5 MMT in 1979-80. This output represents a sevenfold increase over the output of 1976-77. U.S. sunflowerseed exports have traditionally been negligible because until 1968 the majority of output was of birdseed/confectionary varieties. In recent years, though, up to 85 percent of output has been for crush, and exports have correspondingly increased from 18,000 MT in 1971-72 to an estimated 1,800,000 MT in 1979-80.

Flaxseed acreage in the U.S. has fallen from over 1.6 M ha. in the late 1950's to 0.43 M ha. in 1979-80. Production has fallen in line from close to 1 MMT in 1958-59 to 0.34 MMT in 1979-80. Domestic crush was 0.4-0.5 MMT up until about 1972 but since then has declined to only 0.37 MMT in 1977-78. Exports have also fallen dramatically from over 0.1 MMT in the late 1960's to insignificant amounts in recent years.

5.2 Oilseed Crushing

Since World War II, the U.S. soybean crushing industry has evolved from a collection of 200 small, inefficient, multi-purpose oilseed mills into a strong industrial complex of about 130 plants (Houck et. al., 1972; Kromer, 1970; Goldberg, 1968).

In general, it is cheaper to transport soybeans to a mill than it is to transport equivalent amounts of output, especially meal, from a mill. Consequently, soybean crushers tend to locate near potential markets for meal. However, because soybeans themselves are produced in areas where livestock numbers are high, and because the transport costs reflect historical patterns, there is a heavy concentration of soybean crushers in the Corn Belt and Delta regions.

Well over 95 percent of the annual crush is handled by chemical solvent plants. The solvent procedure is more efficient in oil recovery, lower in per unit costs for larger mill sizes, and better suited to automated storage and loading facilities. So, as the efficient plant size has risen, the number of plants has trended downward. Average processing capacity has risen dramatically from 44,000 MT per mill per year in 1951 to over 160,000 MT per mill per year recently.

Most of the U.S. soybean crop is harvested in September and October of each year. Farmers may sell their beans immediately or hold them in on-farm storage. During a typical crop year, about 90 percent of the harvest moves from the farm to country elevators located in the producing regions. Small amounts move directly to processors, to larger subterminal elevators, or to large grain terminals in major cities or ports.

Country elevators typically handle, store, then sell to larger subterminal elevators and to grain merchants located near soybean processors and export positions. The remaining 25 percent of soybeans move

from country elevators direct to processors, seed dealers and, when appropriate, into C.C.C. stocks. In an average year, 55-65 percent of the U.S. crop is crushed domestically and 30-40 percent is exported.

Marketing and price discovery for U.S. soybeans and soybean products are facilitated by active futures markets for soybeans, soyoil and soymeal. Soybeans have been traded on the Chicago Board of Trade continuously since 1947, with soyoil added in 1950 and soymeal in 1951. As in the Canadian situation, elevator companies usually hedge their purchases of beans from producers by selling an equivalent quantity of bean futures and later buying the futures contract back when the beans are sold to crushers or exporters. In this way, stockholders partially assure themselves of a return from their storage operation--the risk coverage is only partial because the basis usually declines as the delivery month approaches. Similarly, crushers hedge to lock in a crushing margin. This is done by buying bean futures and simultaneously selling equivalent amounts of oil and meal futures. Then later, as actual beans are bought, the long hedges on beans are sold and after crushing, the short hedges in oil and meal are bought back as the actual product is sold. Estimates of U.S. oilseed crush demand are given in Agriculture Canada (1980), Griffith (1979), Houck et. al. (1972), Meilke and Young (1979), Meyers (1978), USDA (1978a) and Young (1979).

Outputs from soybean crushing are soyoil and soymeal. The percentage of soyoil used in industrial and non-food uses--soaps, paints, drying oils and plastics--has fallen from about 16 percent in the early 1950's to around 8 percent currently.

Commercial exports of soyoil declined during the 1960's and early 1970's because of the availability of large quantities of other fats and oils on commercial world markets and the self-sufficiency policies pursued by traditional oil-importing regions. Total soyoil exports averaged about 20 percent of total supply during the early 1960's but this declined to 15 percent by the end of the decade and even this level of exports was maintained only with large PL480 shipments.[24] Between 1975 and 1978 soyoil exports more than doubled largely because of commercial sales although PL480 sales still account for 20 percent of total exports. Major markets for U.S. soyoil have been India, Pakistan, Iran, Tunisia, Morocco, Peru, Yugoslavia and Canada.

Roughly 20 percent of U.S. soymeal production is now exported, compared to almost negligible quantities in the early 1950's. Since 1960 meal exports have risen from 0.535 MMT to nearly 6 MMT in 1978-79. This increase has occurred as the growing demand for meat in export markets has caused an expansion in livestock numbers and increased demand for high

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[24] Begun under the Agricultural Trade and Development Assistance Act (commonly called Public Law 480 or PL480), concessional shipments of soyoil and cottonseed oil have been made to food deficient friendly countries.

protein feeds. Major markets are the EC, Eastern Europe, Canada, Spain and Japan.

The only two oilseeds imported for crushing in the U.S. are rapeseed and copra. Rapeseed is imported to provide a high quality industrial oil, and most supplies come from Canada and Sweden. Copra is crushed to provide coconut oil, and almost all comes from the Philippines because of a substantial tariff preference granted imports from that country.

5.3 Vegetable Oil Consumption

On its way from crushers to incorporation into domestically produced end products, soyoil passes through several refining stages depending upon its final destination. Other crude edible oils are also refined, sometimes using different processes, for suitability to particular end uses. Some refining facilities for vegetable oil are owned by processing firms and located near their crushing plants. More typically though, refining and manufacturing facilities are integrated, so the crude oil leaves crushers in bulk tank cars for refining elsewhere.

In addition to domestic crude vegetable oil production (soybean, cottonseed, peanut, sunflower and coconut), large quantities of corn oil (from wet-milling corn), the major edible animal fats (butter, lard and edible tallow) and marine oils are also produced domestically. Further, large quantities of palm, palm kernel and coconut oils are imported into the U.S. Major suppliers are Malaysia, Indonesia and Zaire (palm and palm kernel oils), the EC (palm kernel oil), and the Philippines (coconut oil). Imports of palm oil in particular increased more than 400 percent from 1970 to 1975, (Boutwell et. al., 1976). Small amounts of rapeseed oil are also imported, largely from Western Europe, but mainly for inedible uses.

Refined fats and oils are marketed directly as salad and cooking oils or used as a primary ingredient in other food products such as margarine, shortening, mayonnaise and salad dressing. In the U.S., the oil content of cooking and salad oils and shortening must be 100 percent, while typical contents of margarine, mayonnaise and salad dressing are 81, 80 and 40 percent fats and oils, respectively.

Annual per capita consumption of all fats and oils has been rising slowly since World War II, from about 45 lb/head in 1947 to 51 lb/head in 1968. Yet the per capita consumption of animal fats, mainly butter and lard, has halved over the same time period from nearly 25 lb. to almost 12 lb. This drop in animal fat consumption has, however, been more than offset by rising per capita use of vegetable oils, mainly soyoil. Per capita consumption of margarine, shortening and salad oils more than doubled from 1949 to 1969, and rose from 32.1 lbs. in 1965 to 44.2 lbs. in 1977.

Soyoil dominates the U.S. edible fats and oils market, accounting for roughly 60 percent of all edible fats and oils consumption (Table 5.2). It is used primarily in margarine, shortening and cooking and salad oils. The imported "hard" oils (palm, palm kernel and coconut) are used

TABLE 5.2: U.S. Soyoil Supply and Disposition, 1958-59 to 1978-79, 000 MT

Crop Year Beginning Oct. 1	Supply			Disappearance			
	Beginning Stock	Production	Total Supply	Exports	Shipments To Territories	Domestic Demand	Ending Stock
1958-59	127.5	1928.2	2055.7	421.8	0.0	1498.7	135.2
1959-60	135.2	1967.7	2102.9	432.3	0.0	1531.3	139.7
1960-61	139.7	2004.9	2144.6	327.0	0.0	1510.0	307.1
1961-62	307.1	2172.7	2479.8	593.3	0.0	1605.7	280.3
1962-63	280.3	2309.2	2589.6	528.4	0.0	1643.8	417.3
1963-64	417.3	2187.2	2604.5	501.7	0.0	1840.7	262.2
1964-65	262.2	2334.2	2596.4	607.8	7.7	1845.7	134.7
1965-66	134.7	2630.8	2765.6	418.7	11.3	2126.0	209.6
1966-67	209.6	2756.0	2965.6	488.5	12.7	2194.0	270.3
1967-68	270.3	2736.1	3006.4	436.8	13.6	2311.5	244.9
1968-69	244.9	2962.4	3207.4	394.6	13.2	2610.9	188.2
1969-70	188.2	3585.2	3773.4	644.1	13.2	2870.3	246.3
1970-71	246.3	3748.9	3995.2	790.2	18.1	2836.3	350.6
1971-72	350.6	3579.8	3930.4	634.1	19.1	2920.7	356.1
1972-73	356.1	3402.4	3758.5	483.5	9.1	3032.3	234.1
1973-74	234.1	4080.1	4314.1	650.9	11.8	3290.8	360.2
1974-75	360.2	3345.2	3705.4	466.3	28.1	2956.5	254.5
1975-76	254.5	4368.1	4622.6	442.7	26.3	3586.1	567.4
1976-77	567.4	3890.9	4458.4	701.7	27.2	3381.1	349.7
1977-78	349.7	4639.3	4989.1	933.0	36.3	3711.3	330.7
1978-79	330.7	5136.0	5466.7	1058.7	34.0	4022.0	352.0

Source: Fats and Oils Situation, E.S.C.S., U.S.D.A., May 1980.

predominantly in shortening, although increasing quantities are being utilized in margarine and cooking oil.

Econometric estimates of the demand for U.S. vegetable oils, either individually or in aggregate, have been made by Nyberg (1970), Vandenborre (1970), Houck et. al. (1972), Labys (1977), Lamm (1977) and Meilke and Young (1978).

5.4 Oilmeal Consumption

U.S. soymeal which is not destined for export may be moved into livestock feed use in either of two ways. Some 10 percent of total output (13 percent of domestic utilization) flows from crushers directly to farmers, livestock feeders and custom mixers of farm feeds. These buyers are typically large operators who mix their own feeds or arrange custom-mixing services with local feed mills. The remaining 70 percent of total output (87 percent of domestic use) moves by rail and truck to about 2,000 feed manufacturing plants for use in commercially prepared feeds and rations. The other products of domestic crushing (peanut, cottonseed, linseed, rapeseed, sunflower and copra meals), and fishmeal, almost all follow this second path into livestock feeds.

The U.S. protein meal market has grown rapidly in the last three decades. The farm value of meal consumption has increased at an annual rate of about eight percent, more than quadrupling since the early 1950's.

Soymeal is the single most important high protein feed concentrate used in the U.S., and more is used than all the other high protein concentrates combined (Table 5.3). For example, in the decade 1955-65, soymeal accounted for more than 75 percent of total U.S. protein meal consumption and grew at an annual rate of about 4.5 percent. Soymeal is high in crude and digestible protein and low in fibre, and these characteristics make it especially attractive in feeds for non-ruminants such as poultry and hogs. During the period 1947 to 1960, poultry and hogs utilized about 70 percent of all soymeal fed. Recently however, utilization by ruminants has grown rapidly and they now take some 40 percent of all soymeal fed.

From 1955 to 1965, the second most important protein meal in the U.S. was cottonseed meal, but it had a considerably slower growth rate than soymeal and has now lost its second position. Fishmeal consumption was third highest over this period, and with a strong growth rate of near seven percent annually it is now the second ranked protein meal. Other minor protein meals used in U.S. livestock feeds are linseed and copra meals, both declining in use, and peanut, sunflower and rapeseed meals which are increasing rapidly in use, although quantities are still small (Moe and Mohtadi, 1971). Fishmeal is the only protein meal imported into the U.S.

Apart from competition from other oilseed meals and fishmeal, soymeal also faces competition from other protein sources such as urea in ruminant rations, and new varieties of high protein crops.

TABLE 5.3: U.S. Soymeal Supply and Disposition, 1958-59 to 1978-79, 000 MT

Crop Year Beginning Oct. 1	Supply			Disappearance			
	Beginning Stock	Production	Total Supply	Exports	Shipments To Territories	Domestic Demand	Ending Stock
1958-59	43.5	8609.2	8652.7	464.5	0.0	8135.6	52.6
1959-60	52.6	8302.6	8355.2	588.8	0.0	7692.0	75.3
1960-61	75.3	8574.7	8650.0	535.2	0.0	8044.0	70.8
1961-62	70.8	9382.1	9452.9	965.2	0.0	8402.3	85.3
1962-63	85.3	10094.2	10179.5	1339.0	0.0	8696.3	144.2
1963-64	144.2	9624.3	9768.6	1341.7	0.0	8317.1	110.7
1964-65	110.7	10238.5	10349.2	1847.0	20.9	8385.1	96.2
1965-66	96.2	11703.6	11799.8	2362.3	47.2	9270.5	119.7
1966-67	119.7	12231.6	12351.3	2410.4	44.5	9772.2	125.2
1967-68	125.2	12392.1	12517.3	2630.8	54.4	9700.5	131.5
1968-69	131.5	13227.7	13359.2	2761.5	50.8	10404.5	142.4
1969-70	142.4	15963.7	16106.2	3661.4	60.8	12259.7	124.3
1970-71	124.3	16361.1	16485.4	4135.9	55.3	12161.7	132.4
1971-72	132.4	15443.9	15576.4	3451.8	57.2	11893.2	174.2
1972-73	174.2	15158.2	15332.3	4304.6	47.2	10814.6	166.0
1973-74	166.0	17848.0	18014.0	5033.1	32.7	12488.3	459.9
1974-75	459.9	15151.8	15611.7	3900.0	45.4	11340.7	324.8
1975-76	324.8	18827.7	19152.5	4667.5	55.3	14108.5	322.1
1976-77	322.1	16772.0	17094.1	4135.9	49.9	12701.5	206.8
1977-78	206.8	20294.6	20501.5	5515.7	60.8	14704.6	220.4
1978-79	220.4	22093.6	22314.0	5996.5	68.0	16007.3	242.2

Source: Fats and Oils Situation, E.S.C.S., U.S.D.A., May 1980.

Econometric estimates of the demand for protein meals in the U.S. are reported by Agriculture Canada (1980), Griffith (1979), Houck et. al. (1972), Meilke and Young (1979), Meyers (1978), USDA (1978a), Vandenborre (1977) and Young (1979).

5.5 Oilseed Production Support Policies

No acreage or marketing restrictions have ever been imposed on soybeans through either mandatory or voluntary programs, but soybeans may not be grown on land diverted from other crops under government control programs. The land sown to soybeans is, however, greatly influenced by the government price support programs.

Price support for soybeans is accomplished by simple non-recourse loans at the farm level. A floor price for beans is established nationally by the administration as the price support "loan rate". There is considerable discretion given in setting the loan rate, but the soybean loan rate must be linked to the cottonseed loan rate so that both compete "on equal terms" in the market. The loan rate for each crop year is announced in the spring before planting time. For the 1978/79 and 1979/80 seasons the loan rate was $4.50/bushel.

After harvest, farmers may sell their beans on the market or place them in storage as collateral for a government loan at the announced local support rate. The local rates are closely linked to each other and to the national average support rate by means of transport costs and historical experience. If market prices move high enough, farmers usually sell their stored beans on the open market and pay off the loan at the support rate plus interest. If market prices remain near or below the loan rate, farmers may retain the loan cash and consign the beans to the government in full payment of the loan.

The Commodity Credit Corporation (C.C.C.) is the government agency which handles the price support operations once the policy decisions concerning rates have been made. The loan rate has generally been below the market price, so in such years the C.C.C. does not add to inventories. However, it may handle substantial quantities of beans within the marketing year as farmers try to even out their annual marketings and still retain the non-recourse protection of the loan.

In some crop years, the loan rate has been close to or exceeded the market price--1957, 1958, 1961, 1967 and 1968 crop years. In these years, the C.C.C. acquired large quantities of beans and the loan actually provided a floor price.

The C.C.C. is entitled to sell its holdings of beans when market prices move above support rates by specified amounts--usually 10 percent plus carrying charges. Government acquisition of beans under the price support program, therefore, maintains the market price in periods of heavy supply relative to demand. Conversely, government sales of stocks can also dampen price rises when market demand lifts the price off the loan rate by

an amount sufficient to trigger government releases.

The U.S. peanut program guarantees a minimum price to farmers in compliance for edible grade peanuts, and since 1963 this price guarantee has been 75 percent of parity. Under the legislation the price guarantee set by the Commodity Credit Corporation (C.C.C.) is in the form of loans to producers which can be at any level of parity down to 75 percent. Complying farmers then have the option of selling on the open market or accepting the C.C.C. loan at harvest at the specified rate. For peanuts, the program has operated such that the C.C.C. has taken most of the crop not needed for domestic use, and disposed of surpluses on world markets at prevailing, usually lower, commercial prices. Until 1970, about 90 percent of U.S. production was used domestically--about 65 percent for edible uses, and the remaining low quality and government surpluses for crushing. However, productivity trends meant that the surplus grew rapidly, and the C.C.C. could only sell this at a loss since the loan rate exceeded the world price. Since 1974, the peanut program has been changed to prohibit the C.C.C. from selling peanuts on world markets at a loss.

5.6 Tariffs

The U.S. being a net exporter of oilseeds and oilseed products does not have a tariff schedule like Japan or the EC that aims primarily to protect domestic crushers. The major intent of the U.S. tariff schedule for oilseed products is to protect the domestic oilseed price support programs. Thus, imports of rapeseed have a 1¢/lb. tariff (even though imports of copra enter duty free), and oilmeal imports attract a 0.3¢/lb. tariff.

Vegetable and palm oil imports, however, do generally face higher tariffs than seeds or meals. In the 1950's and 1960's, the tariffs on oil imports were in the range 2 to 3¢/lb., but in the Kennedy Round, the U.S. made some substantial concessions in MFN oil tariffs. In 1969, palm and crude palm kernel oil tariffs were abolished; refined palm kernel oil tariffs were reduced from 3¢/lb. to 0.5¢/lb.; coconut oil from 3¢/lb. to 1¢/lb.; and crude rapeoil from 2.25¢/lb. to 1.8¢/lb. (for edible purposes) and from 5.75¢/gal. to zero (for inedible purposes). Imports of vegetable oils also produced domestically still have a 3¢/lb. tariff. The concession for coconut oil imports was actually less than that implied by the MFN cuts since the only supplier--the Philippines--already received a tariff preference of 60 percent, reduced to 40 percent in January 1968. Thus, the tariff on actual coconut oil imports was 1.2¢/lb. up to 1967 inclusive, 1.8¢/lb. in 1968, and 0.6¢/lb. in 1969, and thereafter (FATUS, 1973). In the 1979 Tokyo/Geneva Round, the only concession in the oilseed area offered by the U.S. was the elimination of the nominal duty of 1¢/lb. on coconut oil (Houck, 1979).

The U.S. implemented their GSP scheme, authorized under the trade act of 1974, on January 1, 1976 and the scheme was amended in 1979. This scheme gives duty free entry to more than 2,500 otherwise dutiable articles from 101 countries and 35 nonindependent countries and territories. Of the approximately 2,500 tariff items, 339 are agricultural, and in the

oilseed complex include sunflowerseed, castor oil, olive oil in large containers, edible palm kernel oil, sesame oil, linseed meal and animal oils, fats and greases (except milk). There are some restrictions on eligible countries, for example Malaysia for palm kernel oil is excluded, and an escape clause to repeal the GSP for any country which effectively dominates U.S. imports of any GSP product in any year (Harper (1975), Freeman (1979)).

5.7 Non-Tariff Measures

The U.S. maintains a number of non-tariff barriers to imports of oilseeds and oilseed products. Only one of these is, however, a restraint at the border--the quota restriction on part of fishmeal imports. The remainder are all due to explicit official intervention in domestic markets, notably the domestic price support programs affecting soybeans, peanuts and cottonseed (and linseed and castor seed which produce industrial vegetable oils). These have been described above.

In 1968, Wipf (1971) estimated that the total effective rate of protection accorded U.S. oilseed crops was 16.4 percent, some 45 percent above the total nominal rate of protection of 11.3 percent. The effective non-tariff protection was 17.2 percent and the effective tariff protection was -0.8 percent. In the same year, the total effective rates of protection for soybeans, peanuts, linseed and cotton were -6.7, 204.0, 26.2 and 100.8 percent, respectively. Thus, the domestic price support programs for U.S. oilseeds in aggregate and individually (except soybeans) have been instrumental in providing a substantial degree of protection to producers, especially when tariffs were zero or falling.

In addition to the price supports available to producers, the soybean, peanut and cottonseed programs all have (or had) provisions for export subsidies. The peanut subsidy arose because the loan rate for peanuts greatly exceeded the world price. The C.C.C. had to dispose of surplus stocks at a loss at the lower commercial prices. Since 1974, however, the peanut program has been changed and the export subsidy has been abolished. The C.C.C. also offers importers financial aid at concessional interest rates.

The export subsidies relating to soy and cottonseed oils are associated with the food-aid program sponsored by the U.S. government (PL480). The aims of the PL480 program have been threefold. First, the program has aimed to advance living standards and to upgrade diets in the recipient countries. Second, the PL480 shipments have been crucial in keeping the commercial supplies of these oils in line with commercial demand at reasonably stable prices. In the absence of this program, there would have been much lower oil prices as these supplies moved into commercial markets, both domestic and export. Lower oil prices would have placed downward pressure on bean and seed prices received by farmers and in some years, increased C.C.C. stocks. Thus, the PL480 export program for these

oils can be viewed as a price support mechanism for vegetable oils and oilseeds. Third, the program has attempted to expand the demand for U.S. vegetable oils. One of the conditions of the program is that the recipient country agree that PL480 shipments not replace commercial sales. Well over half of all soyoil exports were accounted for by PL480 shipments between 1955 and 1971, except for 1970, when 46 percent of total exports were under the PL480 program. Since 1973 approximately 20 percent of total soyoil exports have been sold through the PL480 program.

CHAPTER 6

THE BRAZILIAN OILSEED AND OILSEED PRODUCT MARKET - DESCRIPTION AND POLICIES[25]

6.1 Oilseed Production

Brazil produces three major edible oil-bearing seeds: soybeans, peanuts and cottonseed. It also produces large quantities of castorbeans, which are the source of inedible castor oil.

Soybeans were introduced into Brazil by Japanese immigrant farmers about 1910, but it remained a relatively minor crop until the late 1960's. The evolution of soybean production since 1960-61 is shown in Table 6.1. Soybean cultivation in Brazil is concentrated on a large number of small farms in the southern states.

While yield increases have been responsible for a modest but steady rate of growth in soybean production, the expansion in soybean area has been the single largest source of output growth. Some of this increase in area has come through the opening of new land, but the bulk of the increase has been at the expense of other uses such as corn, pasture, cotton, rice and coffee. Area harvested rose from 171,000 ha. to 7.5 mil. ha. during the period 1960 to 1977, and production followed closely, rising from 0.2 MMT to 12.2 MMT over the same period.

Several factors account for this dramatic growth in Brazilian soybean production. First, climatic conditions in southern Brazil are such that it is possible to double crop wheat and soybeans. The high support price for wheat has substantially increased wheat acreage and spurred double cropping. Between 50 to 70 percent of soybean area in the largest producing areas was double cropped with wheat in 1975 (Reynolds, 1976, p. 23). Second, soybeans may have become more attractive to Brazilian farmers as a nitrogen-fixing legume because of import controls on nitrogen fertilizer. Since Brazil has only a small, relatively high-cost nitrogen fertilizer industry, the squeeze on fertilizer supplies has made soybeans a relatively cheaper crop to cultivate. Third, both Brazilian coffee policy and frosts have contributed to soybean expansion. In the 1960's when there was considerable excess coffee supplies, the government paid farmers to take out old coffee trees and plant other crops. In the State of Parana especially, much of this excess land was planted to soybeans. When the severe frost of July 1975 killed over 15 percent of the coffee trees and severely damaged all the rest in Parana, many of these released hectares also went into soybeans.

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[25] Unless otherwise noted, the material in this section is based on research conducted at Purdue University by Williams (1977) and Thompson (1978).

TABLE 6.1: Brazil Soybean Supply and Disposition, 1960-61 to 1978-79, 000 MT.

Crop Year beginning April	Supply			Disappearance			
	Beginning Stock	Production	Total Supply	Crush	Net Exports	Feed Seed Waste	Ending Stock
1960-61	N/A	206.0	206.0	185.0	9.9	11.1	N/A
1961-62	N/A	271.0	271.0	171.0	73.0	27.0	N/A
1962-63	N/A	345.0	345.0	213.0	97.0	35.0	N/A
1963-64	N/A	323.0	323.0	258.0	33.0	32.0	N/A
1964-65	N/A	305.0	305.0	274.0	0.0	31.0	N/A
1965-66	N/A	523.0	523.0	396.0	75.0	52.0	N/A
1966-67	N/A	595.0	595.0	414.0	121.0	60.0	N/A
1967-68	N/A	716.0	716.0	339.0	305.0	72.0	N/A
1968-69	N/A	654.0	654.0	523.0	66.0	65.0	N/A
1969-70	N/A	1057.0	1057.0	641.0	310.0	106.0	N/A
1970-71	N/A	1509.0	1059.0	1098.0	290.0	121.0	N/A
1971-72	N/A	2077.0	2077.0	1681.0	230.0	166.0	N/A
1972-73	N/A	3700.0	3700.0	2384.0	1020.0	296.0	N/A
1973-74	N/A	5011.0	5011.0	2592.0	1788.0	631.0	N/A
1974-75	N/A	7876.0	7876.0	4043.0	2862.0	971.0	N/A
1975-76	N/A	9892.0	9892.0	5720.0	3520.0	652.0	N/A
1976-77	N/A	10810.0	10810.0	6671.0	3352.0	264.0	523.0
1977-78	523.0	12200.0	12723.0	8553.0	2581.0	976.0	613.0
1978-79	613.0	10200.0	10813.0	8748.0	658.0	918.0	489.0

Source: Gary Williams, International Economics Division, ESCS, UDSA.

Fourth, Brazilian soybeans tend to have a comparatively higher oil content (18.5 - 19.5) percent) than U.S. beans (17.7 percent). Thus, in 1973 and 1974 when vegetable oil prices in world markets rose to unprecedented levels, Brazilian soybean cultivation became more profitable. As Thompson (1978, p. 6) states, "There is simply no other crop or beef which can compete with soybeans on a profit per hectare basis." Finally, Brazil has a rapidly growing poultry industry, so the domestic demand for protein feed supplements has increased markedly.

Peanut production in Brazil rose slowly to around 0.95 MMT in 1971, but since then has dropped sharply to just over 0.3 MMT. Brazil has always been a regular supplier of peanuts to world markets, averaging about 70,000 MT annually in the period 1971 to 1975 falling to 20,000 MT annually 1976-78. Domestic demand for peanut oil is strong, but the decline in production and the substantial premium paid for peanut oil on world markets has meant that 85 to 90 percent of production is exported. This amounts to some 50,000 MT annually, and together with peanut exports, Brazil satisfies about 10 percent of world import demand on a peanut oil equivalent basis. Brazil was also a major exporter of peanut meal in the 1960's but these exports have declined with production and as domestic demand has risen.

Cottonseed output in Brazil has also declined in recent years from its average level of just over 1.0 MMT during the 1960's and early 1970's. All Brazilian cottonseed is crushed domestically, and most of the oil produced is consumed domestically although some has been exported in recent years. Brazil was also a major exporter of cottonseed meal up until about 1974, but since then exports have halved as production has diminished and domestic demand strengthened.

Brazil is the world's leading exporter of castor oil. All castor bean production is crushed domestically, and almost all the oil is exported--about 0.125 MMT annually in 1973-78. In this period, Brazil accounted for almost 80 percent of world castor oil exports, and 62 percent of the oil equivalent of castor oil and bean exports.

In the past two decades, the distribution of annual soybean supplies has been changing rapidly. Until recently, Brazil had a limited storage capacity which precluded a year-round sustained flow of soybeans and products to domestic and export markets. Port and country elevator storage has, however, been increasing rapidly in recent years, and Thompson (1978, p.11) notes, that by 1978 there was enough storage capacity in place to have stored the entire expected crop (if it had been necessary or desirable). Even so, the humidity-induced quality deterioration has meant that beans move in and out of storage within the same year, and stocks, therefore, change little on a year-to-year basis. Also fairly constant has been the quantity of beans kept for feed and seed purposes, at about 8 to 10 percent of production (Williams, 1977, p. 36).

The change that has been most significant is the distribution between crush and exports. Quantities crushed, as discussed in section 6.2, have risen rapidly from less than 0.3 MMT up until about 1965 to over 8.5 MMT in 1977. However, as a percentage of production, crush has fluctuated considerably, with most of the variability caused by changing export policies.

Quantities of soybeans exported have risen from less than 0.1 MMT in the early 1960's to about 0.3 MMT in 1970, and 2.58 MMT in 1977. However, as domestic crushing has expanded and government policies changed, the annual rate of increase in bean exports fell sharply. The export share of production has varied inversely with crush, falling to about 10 percent in 1971, rising to near 40 percent in 1974, and then falling back to less than 10 percent in 1978. Brazil's share of world soybean exports has increased from less than four percent up until 1970 to about 20 percent in 1977. Principal outlets have been the EC (especially the Netherlands and France), Spain, Japan, more recently the USSR and PRC, and a large number of smaller import markets.

Apart from the direct influence of government export policy, several other factors have affected the pattern of Brazilian exports of soybeans. The limited storage capacity noted above has meant that beans had to be transported to ports soon after harvest in April/May and shipped out before the wheat harvest in the spring. This seasonal market flow put considerable stress on transportation and financing facilities and services, and added to FOB costs. However, the export period did coincide with seasonal world price peaks that precede the U.S. harvest. Recent improvements in port and storage facilities, upgraded internal transport systems, and fuel tax rebates should do much to even out the export period. Another positive factor is the fact that Brazilian beans have a higher oil content, and a higher protein content (46 to 48 percent) than U.S. beans (44 percent protein). In mid 1977, European crushers were apparently willing to pay a $3 to $5 US/MT premium for Brazilian beans over U.S. beans (Thompson, 1978, p. 18).

6.2 Oilseed Crushing

In the past, the Brazilian crushing industry was characterized by a large number of small and medium capacity family firms which crushed peanuts, cottonseed and castor beans. These firms tended to be relatively inefficient and operated with outdated equipment and little or no working capital. They located near the production regions in the southern states and en route to the ports. When soybean output expanded in the late 1960's, many of these general purpose crushers began crushing soybeans as well.

The growth in soybean production spurred the construction of new crushing capacity, so total capacity grew from less than 1 MMT in 1969 to over 12 MMT in 1977. By the 1979 season, capacity is expected to reach almost 15 MMT and it is still increasing rapidly. The new capacity is relatively efficient, operates at a high utilization rate, is located near

ports to make use of export opportunities, and, as explained below, is devoted almost entirely to soybean crushing. About one half of the total soybean crush capacity consists of plants with greater than 1,000 MT/day output.

The crushing process used by most of the small and medium size processors is "batch expression", which can be adapted to various oilseeds. Batch expression is a combination of mechanical pre-pressing and "solvent extraction". The oil yield from this process is greater than by mechanical expression alone, and labour and energy requirements are lower. The larger, newer crushers almost exclusively use solvent extraction alone, which is the most efficient process with oil yields of near 20 percent, and labour and energy requirements about half that required by batch expression. However, the solvent extraction process cannot be adapted to processing more than one type of oilseed, and is most suited to relatively low oil content oilseeds, so it is used to crush only soybeans.

Some 90 percent of installed oilseed crush capacity in Brazil's southern region can, therefore, be used for soybeans--nearly 50 percent of the capacity is devoted exclusively to soybeans, while a further 40 percent is used to crush soybeans or other oilseeds depending on their relative profitabilities. The volume of soybean crush has increased markedly, maintaining a close relationship to the availability of crush capacity (see Figure 6.1). Econometric estimates of Brazil oilseed crush demand are reported in Griffith (1979), Gulliver et. al. (1979), USDA (1978a) and Williams (1977).

Brazil was traditionally a net importer of soyoil, but the rapid growth in soybean production and crush capacity generated soyoil in excess of domestic requirements by 1971 (Table 6.2). Changing export policies have, however, meant that soyoil exports have exhibited considerable instability. For example, soyoil exports increased from 10,000 MT in 1971 to 82,000 MT in 1973. After dwindling to only 16,000 MT in 1974, exports increased dramatically to 327,000 MT in 1975 and to 557,000 MT in 1977. Now some 35 percent of output is exported. Major markets over this period were Iran, Peru, India and the EC, but the bulk of exports went to a large number of small markets in Asia and South America. Brazil soyoil exports as a percentage of U.S. soyoil exports rose from 10 percent in 1972 to 50 percent in 1975-76, and to nearly 100 percent in 1977. In the EC market, Brazil's share was twice as large as the U.S. share in 1975. In 1977 Brazil's share of world soyoil and soybean exports was 30 percent compared to only 13 percent in 1974.

Within the past few years, Brazil has also become a major force in the world soymeal market. Net exports rose steadily from zero in the early 1960's to 0.580 MMT in 1970. Since then, exports have expanded rapidly, reaching 5.3 MMT in 1977 (Table 6.3). Major markets have been the EC, particularly the Netherlands, France and West Germany, and since 1971, Spain, Yugoslavia and Poland. Brazil soymeal exports as a percentage

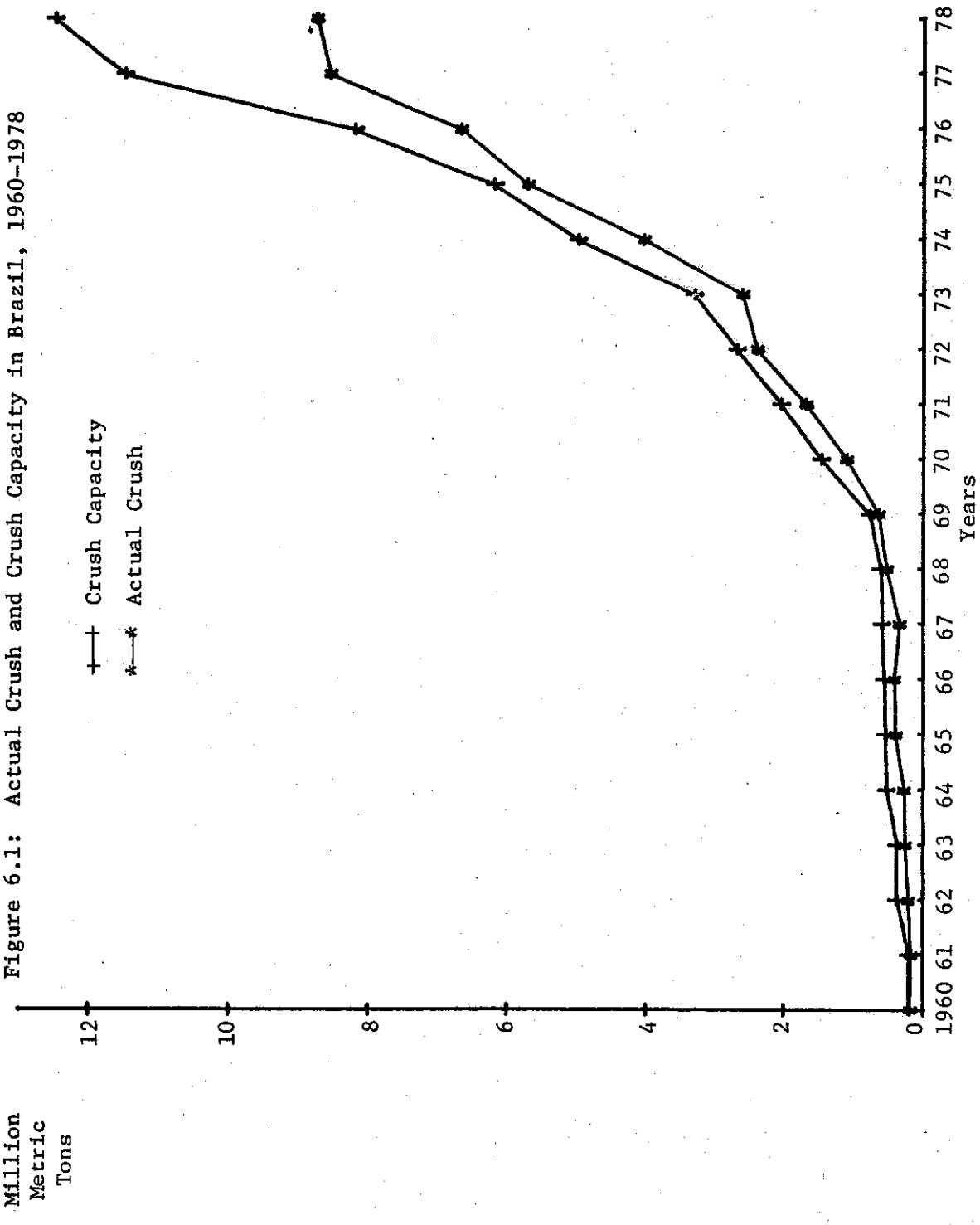

Figure 6.1: Actual Crush and Crush Capacity in Brazil, 1960-1978

TABLE 6.2: Brazil Soybean Oil Supply and Disposition, 1960-61 to 1978-79, 000 MT.

Crop Year beginning April	Supply	Disappearance	
	Production	Net Exports	Domestic[1] Demand
1960-61	34.2	.0	34.2
1961-62	31.6	.0	31.6
1962-63	39.4	-3.0	42.4
1963-64	47.7	-1.0	48.7
1964-65	50.7	-2.0	52.7
1965-66	73.3	-10.0	83.3
1966-67	76.6	-11.0	87.6
1967-68	62.7	-15.0	77.7
1968-69	96.8	-10.0	106.8
1969-70	118.6	-4.0	122.6
1970-71	203.1	-2.0	205.1
1971-72	311.0	10.0	301.0
1972-73	441.0	61.0	380.0
1973-74	479.5	82.0	397.5
1974-75	748.0	16.0	732.0
1975-76	1058.2	327.0	731.2
1976-77	1234.1	430.0	804.1
1977-78	1582.3	557.0	1025.3
1978-79	1618.4	542.0	1076.4

[1] Calculated as a residual, includes stock change and waste.

Source: Gary Williams, International Economics Division, ESCS, USDA.

TABLE 6.3: Brazil Soybean Meal Supply and Disposition, 1960-61 to 1978-79, 000 MT

Crop Year beginning April	Supply	Disappearance	
	Production	Net Exports	Domestic[1] Demand
1960-61	138.8	.0	138.8
1961-62	128.3	40.0	88.3
1962-63	159.8	50.0	109.8
1963-64	193.5	62.0	131.5
1964-65	205.5	44.0	161.5
1965-66	297.0	105.0	192.0
1966-67	310.5	185.0	125.5
1967-68	254.3	125.0	129.3
1968-69	392.3	235.0	157.3
1969-70	480.8	310.0	170.8
1970-71	823.5	580.0	243.5
1971-72	1260.8	990.0	270.8
1972-73	1788.0	1540.0	248.0
1973-74	1944.0	1370.0	574.0
1974-75	3032.3	2400.0	632.3
1975-76	4290.0	3550.0	740.0
1976-77	5003.3	4187.0	816.3
1977-78	6414.8	5329.0	1085.8
1978-79	6561.0	5368.0	1193.0

[1] Calculated as a residual, includes stock change and waste.

Source: Gary Williams, International Economics Division, ESCS, USDA.

of U.S. soymeal exports rose from a fairly constant 4 to 8 percent up until 1969 to 40 percent in the early 1970's and 100 percent in 1977. Thus, Brazil soymeal exports have now matched U.S. exports on a world basis and have made substantial inroads into traditional U.S. markets, particularly the smaller importing regions. As with soybeans, soyoil and soymeal usually move in and out of storage within the same year. Soymeal is highly perishable and cannot be stored for long periods in Brazil's humid climate. Soyoil stocks also show little fluctuation from year to year.

6.3 Vegetable Oil Consumption

Brazil has historically been an edible oils deficit country, relying principally on lard and butter to satisfy domestic demand. However, with urbanization and rising real incomes, demand has shifted away from butter and lard to margarine and edible oils for cooking purposes.

Apparent consumption of the three major edible oils, soy, peanut and cottonseed oils, has, therefore, increased steadily over the period 1960 to 1977 from about 0.3 MMT to 1.32 MMT in 1977. In per capita terms, the increase has been from about four to ten kg/head/year. However, with falling consumption of peanut and cottonseed oils, soyoil's share of total consumption has risen markedly, from 12 percent in the early 1960's to some 84 percent in 1977, and soyoil has dominated the edible oil market since 1972. However, soyoil has such a high proportion of the total market that there is little room left for further substitution.

Soyoil consumption rose from over 0.03 MMT to slightly more than 0.12 MMT during the 1960's. A jump to 0.20 MMT in 1970 was followed by further rapid increases until consumption reached 0.73 MMT in 1974. After declining slightly in 1975, consumption again increased reaching 1.1 MMT in 1978. Soyoil is used mainly as a cooking oil in Brazil, but it is also used in manufacturing margarine, mayonnaise, salad oils, and some pharmaceutical products such as antibiotics. Most consumption is in urban areas since soyoil is still relatively unavailable in rural communities due to the lack of a national distribution system.

Both peanut and cottonseed oil consumption is declining, due to decreases in Brazilian peanut and cotton production, the closing of a number of small general purpose crushing plants, and the substantial premiums both oils receive on world markets, which makes exports a more profitable outlet. Most domestic cottonseed oil goes into margarine, while the little peanut oil that is available is used as a salad oil. Small amounts of corn oil and imported palm oil are used in margarine manufacture, as are still sizable quantities of lard.

Econometric estimates of Brazilian vegetable oil demand may be found in Griffith (1979), Gulliver et. al. (1979), USDA (1978a) and Williams (1977).

6.4 Protein Meal Consumption

While in other countries soymeal is used in hog, cattle and poultry feeds, in Brazil soymeal is used mainly in poultry feed, which accounts for more than 75 percent of all mixed feed consumption. Brazil has a rapidly growing poultry industry, with production rising from 0.154 MMT in 1969 to 0.691 MMT in 1978. With the adoption of modern broiler production technology, the domestic demand for protein feed supplements has increased markedly, but again, not as rapidly as increases in production. About 16 percent of mixed feed goes to hogs, and the remainder to dairy cattle.

Before 1970, cottonseed and peanut meals were the major protein ingredients in mixed livestock feed, supplemented with fishmeal and animal protein such as meat meal. Currently however, soymeal is the preferred protein feed supplement, and comprises about 25 percent of the volume of livestock feed production. Soymeal is favoured over the alternate meals for two main reasons. First, the supply of soymeal is increasing relative to demand (resulting in lower prices) and also relative to that of the other protein meals. Second, soymeal has a number of nutritional advantages. It has a high or higher protein content (45 to 50 percent) than peanut meal (45 percent) or cottonseed meal (41 percent); it is relatively high in lysine, an essential amino acid for poultry; and it contains none of the toxic elements present in the alternative meals.

Consumption of soymeal rose, with considerable variability, from just over 0.1 MMT in the early 1960's to 0.243 MMT in 1970, and a peak of 1.2 MMT in 1978 (Table 6.3). About 25 percent of production is consumed domestically, and econometric estimates of this demand are available in Griffith (1979), Gulliver et. al. (1979), USDA (1978a) and Williams (1977).

6.5 Production Support Policies

Direct government regulation of soybean production in Brazil has been minimal. While soybeans are included in a minimum farm price program, the prices have usually been set below prevailing market prices, so the government has seldom found it necessary to enter the market (Fox, 1979). Support prices are maintained at about a constant real level (Steele, 1977, p. 2), but are now set on a more formal basis than previously, incorporating changes in production costs, world prices, and domestic requirements. As a once-off measure, the government offered to purchase 1 MMT of soybeans from the 1975/76 crop at a fixed price, and store them until prices rose. However, the market price remained above this fixed price and no purchases were necessary.

There also have been some substantial indirect influences of farm policy on soybean production. As mentioned previously, Brazilian coffee policy contributed to the soybean expansion. In the 1960's, when there was considerable excess coffee production in the world, the Brazilian

government paid farmers to take out old coffee trees and plant some other crop, and some of this land was put into soybeans.

Another stimulus to soybean production came from Brazil's wheat policy. To a considerable extent, soybeans got their start in southern Brazil through double cropping with wheat. For many years, Brazil has had the objective of becoming self-sufficient in wheat, and has maintained a support price for wheat well above world prices. This has been combined with subsidies for machinery acquisition and fertilizer and lime. The same machinery can be used for both wheat and soybeans, and the residual fertilizer remaining in the soil after the wheat crop is also available for the soybeans. Therefore, the wheat policy in effect removed much of the risk from attempting to grow soybeans, and provided a substantial incentive for the soybean takeoff.

The soybean expansion has also benefitted from the policy of making liberal credit available at substantially negative real rates of interest for acquisition of both machinery and current inputs. This has made it relatively easy for farmers to get into soybean production. The availability of credit for current production expenses for any given crop is tied to the level at which the minimum price for that crop is set, i.e., credit is made available up to 60 percent (raised to 80 percent in 1977) of the minimum price times the expected yield. Since the minimum price of soybeans has always been below the market price, the only effect of the guaranteed price program on soybean production has probably been through this impact on credit availability (Thompson, 1978).

6.6 Non-Tariff Measures

6.6.1 Consumption Subsidies

There have been domestic price ceilings on both soyoil and soymeal prices since the revolution of 1964 to slow the rate of food price inflation. These price ceilings have been an important contributing factor to variations in export policy and to the recent expansion in crushing capacity. For example, in general it has been policy to implement quantitative export restrictions to prevent meal and oil prices from moving above these ceilings. In late 1973 until April 1974, edible oil virtually disappeared from supermarkets in Brazil until the government raised the ceiling price on oil to restore crushing margins. The crusher-refiners simply refused to sell oil until the government raised the fixed price, since at this time soyoil exports were essentially prohibited.

6.6.2 Exchange Rate Policy

During the period of export stagnation up until the early 1960's, the Brazilian currency was over-valued and adjusted only with a lag to compensate for the country's inflation and rising internal costs. The policy of over-valuation was in part an attempt to exploit the inelastic export demand for coffee, since an increase in price would raise total

export revenue. Multiple exchange rates were also frequently used, but, after the 1964 revolution, Brazil's foreign trade policy became more open, and efforts were made to move the exchange rate closer to equilibrium. For example, in late 1967, a policy of making small, more or less monthy devaluations was started, and exports began to increase (Schuh, 1970). Following the oil crisis in late 1973, the Brazilian balance of payments was severely affected, and the mini-devaluations were slowed down, so that the cruzeiro became over-valued again, imposing an implicit tax on all exports including soybeans and products. Schuh (1977) has estimated that the degree of over-valuation reached 25 percent. The same thing happened in mid-1977, as world prices rose rapidly, and the government feared that insufficient product would be available domestically to hold soyoil and meal prices under their ceilings. However, the reverse occurred in May 1976, when the cruzeiro was devalued four times in 66 days in an effort to stimulate soybean exports. Thus, exchange rate policy has been closely linked to both domestic price policy and foreign trade policy.

6.6.3 Export Subsidies and Taxes

Many factors account for Brazil's recent emergence as a major force in the world market for soybeans, oil and meal and some of these have been discussed above. However, of equal importance are the stimulative export subsidies of the Brazilian government.

The export policy of the Brazilian government has had an important effect on the expansion of the Brazilian crushing capacity, as well as on the volume of soybean exports. As noted above, since there are domestic price ceilings on soymeal and soyoil prices, quantitative export restrictions are required to prevent meal and oil prices from moving above these ceilings. Moreover, exports of soybeans must also be controlled to ensure a positive crushing margin for the industry. Therefore, quotas (upper bounds) on the export of soybeans, meal and oil are established for each marketing year. (They are occasionally adjusted up or down in the course of the year to reflect changing market conditions.) The levels of these export quotas then determine the profitability of crushing and the attractiveness of investments in crushing facilities. The effective margin, however, has been adjusted up or down by certain differential taxes and subsidies on bean, meal and oil exports, which have varied through time.

During the 1950's and early 1960's, Brazilian exports of all goods stagnated. This stagnation appears to have been due not so much to a high level of Brazilian costs as to a restrictive government policy towards exports (Schuh, 1970, pp. 17-19). This was reflected in an "exportable surplus" approach to trade, in which only the "surplus" left over after the domestic market had been deemed to be "adequately" supplied was made available for export (Leff, 1967). The decision rule often followed was that export licenses were denied if the domestic price was rising. In a period of continuous, rapid inflation, this criterion was frequently fulfilled.

In 1958, soybean exports came under the formal control of CACEX, the foreign trade office of the Bank of Brazil, through a program of registration and licensing. When a sale was made in the international market, the sales contract had to be delivered to CACEX within three days. If CACEX believed that the price compensated farmers fairly, it registered the sale. If not, CACEX had the option of not registering the sale. The policy amounted to imposing export quotas. According to Knight (1971), these direct export controls measurably influenced exports of beans only in 1960 and 1964. This absence of restrictive effects was probably due to the relative insignificance of soybeans in the Brazilian oilseeds group during this time period.

Beginning in 1964, Brazil's foreign trade policy gradually shifted to one of export promotion. Licensing requirements on most goods were eliminated, and as noted above, efforts were made to move the exchange rate closer to the equilibrium level.

In 1972, when world soybean, soymeal and soyoil prices climbed substantially above historical levels, the Brazilian mixed feed industry demanded relief, arguing that it could no longer pay the escalating price for soybean meal while having to sell its output at the price ceiling fixed by the government. In response to that appeal, CACEX established a retention system of quotas on soybean and soybean meal exports in early 1973. For every three tons of soybeans exported, one ton had to be sold domestically - either as beans or the meal equivalent. For soymeal, a retention scheme in which the sales ratio was set at four to one was established; while domestic soyoil production was negligible, relative to demand before 1975, and exports were essentially prohibited.

The set of State value-added taxes (ICM), already applied to domestic sales (soymeal 0, and soybeans and soyoil varying by states up to a maximum 14 percent) where also applied to export sales (soymeal 0, soyoil 5 and soybeans 12.5 percent). Since it was more profitable to crush the beans and sell the product (especially meal), crush capacity expanded rapidly and exports of soyoil and soymeal boomed.

In late 1973 with the world petroleum crisis and resulting petroleum price rise, the Brazilian balance of trade was severely affected, and 1974 saw a return to a number of trade controls. The government eliminated the retention system and began to control exports of soybeans and soymeal through an export licensing scheme. Soyoil exports continued to be prohibited. In addition, the ICM tax on soybean exports was lowered to 9.75 percent. In July of 1974, exports of soybeans and soymeal were temporarily suspended while the government appraised the internal supply situation. A new export system for soybeans was subsequently introduced, in which the volume of exports in any period was not allowed to exceed the "exportable surplus" defined as total production less installed crushing capacity. Meal exports resumed when the crushing industry, as a whole, agreed to assure an "adequate" supply of meal for the domestic market. The criterion for "adequacy" was measured by the

level of the domestic soymeal price. Protests by the mixed feed industry that crushers were under-estimating its "needs" resulted in suspension of soymeal exports again in November 1974. Soyoil exports continued to be prohibited until December 1974, when a small sale was authorized.

In 1975, with the growth in soybean crushing, soymeal and soyoil stocks accumulated and export controls on these products were removed. The ICM tax on soybean exports was again raised to 11.5 percent, only slightly below the rate on domestic sales of 13 to 14 percent, depending on the state. (The ICM tax on bean exports is charged on the FOB export price less port and transportation costs. The effective rate in the interior may be only about 11.6 percent or so.) No ICM tax is charged on domestic sales of soybean meal, since "modern agricultural inputs" are exempt, however, 5 percent was charged on meal exports in 1975. The lower rate on meal than on beans provided an incentive to crush the beans in Brazil.

No ICM tax was charged on oil exports in 1975, although up to 14 percent was charged on domestic sales. In addition to this benefit of exports over domestic sales, a 16 percent subsidy was granted on soybean oil exports in the form of a tax credit against the federal value-added tax on industrial products (IPI) and the state ICM tax owed by the exporting firm (equally split). An additional incentive to soyoil exports was an exemption of pretax profits on soyoil exports from the federal income tax of 30 percent. In addition, soyoil and soymeal exports benefited from a special export financing scheme at 8 percent interest established in 1971 (the market rate was in the range of 20 to 30 percent), while an exemption from import duties was granted on machinery destined for production of goods for export.

While some export subsidy may have been justified to offset the implicit export tax associated with cruzeiro over-valuation during these years, the policy mix was quite clearly biased in the direction of stimulating meal and oil exports and domestic crushing of soybeans.

In 1976, the basic structure of the soybean and soymeal export policy was maintained essentially the same as in 1975. When soybean exports were slow to get underway after harvest, the ICM on soybean exports was reduced to 10 percent for April, May and June, but then, the crushing industry was prohibited from exporting more beans. In January 1976, the oil export tax credit was reduced from 16 to 14 percent, however, it was raised to 20 percent again when new crop beans became available for export. This brought threats by the United States crushing industry to take retaliatory action under Section 301 if Brazil did not cease and desist in subsidizing soybean oil exports by this means. As a result, the credit was reduced to 14 percent on July 1, 1976; 8 percent on January 1, 1977; and 4 percent on July 1, 1977. It was completely eliminated on December 31, 1977. Export sales of crude and refined soybean oil continued exempt from the 30 percent corporate income tax, nevertheless.

At the beginning of 1977, after the government and crushers agreed that 1 MMT of oil and 1.2 MMT of meal would be retained for domestic consumption, exports were authorized. A system evolved in which the export controls were generally policed by the crushers association itself. Once it certified that a sufficient volume of meal and oil were available to keep the domestic prices below the ceilings, CACEX authorized the export shipment. However, as the 1977 marketing year opened and world market prices approached their historic highs, the government of Brazil first imposed an export embargo (on March 11th) and then imposed an ad valorem export tax of 7 percent on beans, meal and oil to hold down their domestic prices (on March 23rd). There may also have been some intent by the government to exploit the apparent inelastic export demand which existed in a period of low world stocks six months before the U.S. crop would be harvested. The export tax was raised to 11 percent on May 3rd. It was lowered to 7 percent on July 1st and again to 4 percent on July 25th. The tax was eliminated altogether on August 18th. While the export tax was in effect in 1977, part of the tax revenue was given as a specific subsidy per quantity sold on the domestic market to crushers in a further attempt to hold domestic meal and oil prices down.

The system of export taxes in 1977 described here was superimposed upon, i.e., partially offset, the ICM export incentives. In 1977, the ICM tax rate of 13 percent was charged on both domestic and export sales of soybeans. No ICM tax was collected on soyoil exports, while a tax of 11 percent was collected on interstate and 13 percent on interstate domestic sales. There was still no ICM charged on domestic meal sales, however 5 percent was charged on exports (7.5 percent from April 28 - August 18, 1977).

During 1977, the European Community Oilseed Crushers' Association (FEDIOL) filed an anti-dumping complaint against Brazilian soybean meal with the European Community Commission. FEDIOL protested as unfair the tax advantage of exported meal over beans which encouraged domestic crushing and meal exports at a time when the EC had substantially expanded its own crush capacity. The Brazilian government agreed to raise the taxes on exported meal. On November 21, 1977, a special 3 percent export tax was placed on soybean meal, raising the total tax on meal exports to 8 percent. Under terms of the agreement, the total tax was raised to 9.6 percent on May 1, 1978, and to 11.1 percent on November 1, 1978. Beginning in May 1978, the entire export tax was ICM. In 1978, there was still no ICM tax on oil exports and 13 percent was charged on bean exports. Therefore, with the new tax rates, the differential favouring the export of meal over beans had been narrowed substantially, but a rather large benefit still existed on the oil side.

Specific export quotas were again introduced in 1978 to ensure adequate supplies for the domestic market, and price ceilings imposed from time to time on domestic oil and meal price.

This review of the constellation of taxes and subsidies on soybeans and soybean products in Brazil suggests fairly clearly an objective of the government to stimulate expansion of the domestic soybean crushing capacity and to export soymeal and soyoil to the extent possible instead of the raw soybeans. This increased domestic value-added as well as foreign exchange revenue from the soybean complex. The evidence is that the industry responded dramatically to the incentives, and from 1977 Brazil exported more soyoil and soymeal than the U.S.

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