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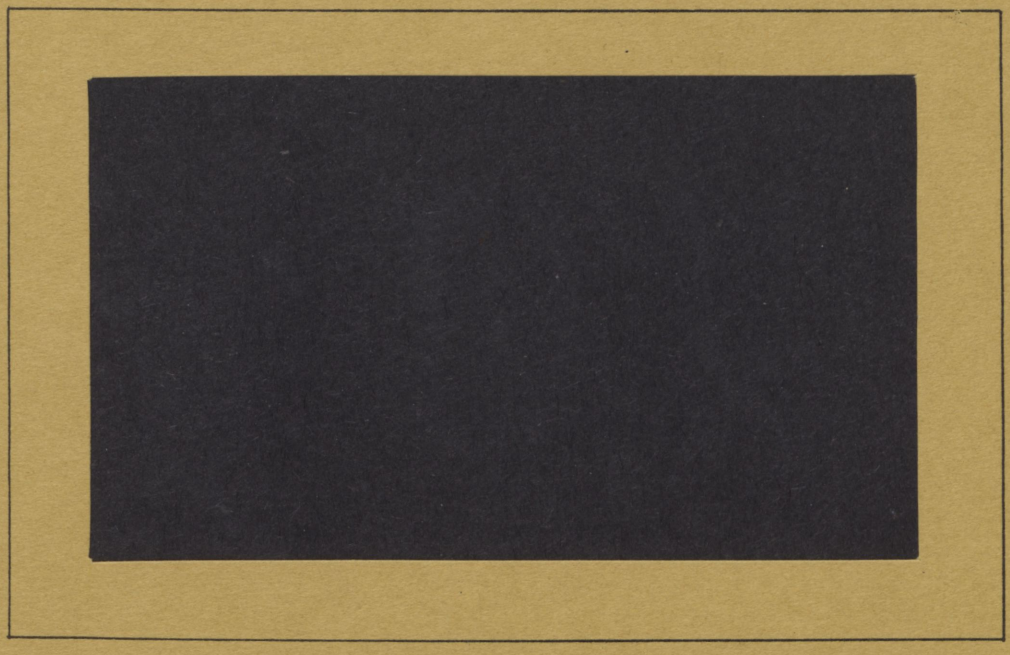

SCHOOL OF AGRICULTURAL ECONOMICS AND EXTENSION EDUCATION

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AN ECONOMIC ANALYSIS OF THE MARKET FOR CANADIAN RAPESEED

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PREFACE

The rapid increase in rapeseed production in and commensurate volume of exports from the Canadian west has stimulated an interest and need for further research in several areas. First, the large scale production of high protein livestock feed and edible oil in the west breaks the Ontario soybean monopoly. This situation thereby creates a new dimension in the economic relationships within the Canadian oilseeds market especially with regard to Ontario produced and imported U. S. soybeans. Economic research is required to identify and quantify these new relationships. Second, the emergence of an apparent viable alternative to wheat production in the Canadian west opens a host of economic questions especially in the areas of Canadian government and grains institutions policies and market forecasting.

This study does not tackle these important problems. It is intended to merely identify some of the background information which is required to obtain a perspective for these types of studies. A logical progression from this study is to undertake an econometric analysis of the foreign and domestic market for rapeseed. Such a model would hopefully provide some answers for policy and outlook problems identified above.

The authors appreciate the helpful comments of Prof. R.G. Marshall on this paper. It is part of an ongoing study of the Canadian livestock-feedgrains economy at the University of Guelph contracted by the Ontario Department of Agriculture and Food.

January 1972

H.B. Huff
D.P. Stonehouse

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INTRODUCTORY NOTE - Definition of Terms

Certain terms appear frequently throughout the text and in the tables; they are defined here for purposes of correct interpretation.

1 long ton	= 2,240 pounds
1 metric ton	= 2,204.6 pounds
1 bushel of rapeseed	= 50 pounds
Oil content of rapeseed	= 40 percent

Rapeseed crop year: August 1st to July 31st

1. INTRODUCTION

1.1 The Prairie Dilemma

The period of the late 1960's found Western Canadian agriculture in a near chaotic situation. The export market, bread and butter to the prairie agricultural economy, had contracted sharply and prospects for immediate improvement appeared dim, particularly for the three major field crops -- wheat, feedgrains, and flaxseed. The international wheat market, a seller's market in the mid-1960's suddenly became glutted as a result of good harvests in previously large importing countries (e.g. India, U.S.S.R.) and rapidly expanding production in smaller exporting countries (e.g. Australia, France). Canadian exports of feedgrains had dwindled to only 5.5 percent of Prairie production largely through preoccupation with wheat production and sales. Flaxseed exports had been reduced by competition from synthetic industrial oils.

The set of agricultural policies in the prairies had favoured wheat production over other commodities and encouraged persistent surplus production to an extreme in July 1970, when carryovers exceeded two full years' requirements. Demand projections indicated that in the long-run, more than 10 million acres should be diverted from wheat production, while in the short-run, the carryover situation dictated probably double this amount of acreage be diverted. The impact on the prices of alternative commodities from production adjustments of this magnitude would have been disasterous. Challenged with these alternatives, the federal government opted to idle a major proportion of wheat acreage and encourage conversion of cultivated acreage to forage crops through its LIFT (Lower Inventory for Tomorrow) program in 1970.

While a program such as LIFT may have been the best strategy to alleviate the short-run wheat production crisis, it is not an economically rational formula on which to base a long-term policy. Recent emphasis in grains policy has focused on both export demand creation and matching annual supply and demand. To facilitate the latter, pre-planting production guidelines for wheat, oats and barley were initiated in 1971. This policy places considerable stress on the ability of government planners. They must be able to accurately forecast export demand at least 18 months in advance in order to minimize carryovers. Less obvious, but perhaps more important, individual commodity price forecasts are required as well as their demand/price relationships so that prairie income is maximized. For example, if a substitution of one million acres from wheat to barley production would increase total prairie income, acreage guidelines should be developed accordingly.

Amidst the dismal export market prospects, one commodity has emerged as the "Cinderella" crop of the West. Rapeseed has recently displayed a consistent, and accelerating, upward trend in both export volume and earnings. One estimate shows that approximately 15 million acres of prairie farmland are suitable for rapeseed production. Rapeseed, however, does not thrive on a monoculture system, so probably only one-half of this acreage could consistently be sown to rapeseed.

Prairie producers have received only limited assistance in deciding optimal acreage to commit to rapeseed.

1.2 Outline of the Paper

Rapeseed has been receiving increasing amounts of attention in the farming press and in agricultural production bulletins. These have dealt with the husbandry, production and technological aspects of rapeseed [3, 6, 10 and 22], and also investigated the Canadian internal marketing situation and problems [14]. Some brief references have been made to future prospects for Canadian rapeseed [3, 10, 22 and 23], but thus far there has apparently not been undertaken any comprehensive study on the trends and prospects for Canadian rapeseed in either domestic or foreign markets. This study is one step in an attempt to fill that gap. In particular, its objective is to analyse the historic trends and future prospects for Canadian rapeseed demand in domestic and foreign markets.

In this study the world fats and oils situation is examined first, followed by an analysis of the international rapeseed market. Emphasis is then centred upon the role played by Canadian rapeseed in world markets, and upon the rapid expansion of Canadian rapeseed production and exports, culminating in the emergence of Canada as the leading world producer and exporter in 1970. The increasingly important role of rapeseed in Canada's domestic fats and oils market is analyzed, and potential for future growth examined. Finally, rapeseed's contribution to the Canadian prairie economy, and the potential for further acreage expansion is evaluated, followed by an examination of FAO projections for fats and oils, and their implications to the anticipated demand for Canadian rapeseed.

2. THE MARKET FOR CANADIAN RAPESEED

2.1 World Fats and Oils Market

During the past two decades, both world supply and demand for fats and oils in aggregate have expanded in concert by an average of 3.5 percent per annum, [15, p. 161] resulting in a general annual production and consumption equilibrium. Most of the increase in output has been in soybeans (mainly in the U.S.) in rapeseed, (in Western Europe and Canada), and in sunflowerseed, (mostly in the Centrally Planned Economies). Recent recovery in output of tropical tree oils in Africa has reversed its downward trend in production that occurred through much of the 1960's. Output of butter, lard, marine oils and industrial oils has been declining relative to other fats and oils in the past few years, as a result of increasing competition from synthetic products (Table 1).[1]

World exports of fats and oils averaged 7.6 million tons in 1955-57, and represented 27 percent of world output. By 1970, exports had risen to 12.9 million tons, or about 30 percent of world supplies [16]. Much of this expansion in trade has occurred between the Developed Countries, which as a group account for almost 60 percent of total world trade in fats and oils.[2] An import-export trade matrix (Table 2) emphasizes this domination and illustrates the direction of oilseed trade. The principal importing regions are Japan, Western Europe especially the United Kingdom (UK) and the European Economic Community (EEC), and the US, while the major exporting regions are North America, Latin America and tropical Africa. Of the exporting countries, the U.S. is by far the most prominent, accounting for nearly one-third of world fats and oils exports in the 1960's, including about 90 percent of world soybean oil exports. U.S. soybeans, nuts and Canadian rapeseed have been the main contributors to the increase in world exports of fats and oils in recent years, with Japan and Western Europe being the principal purchasers of these commodities.

Although there has been a consistent upward trend in the volume of world exports of fats and oils, total export earnings have not grown as rapidly because of declining prices in the last two decades, especially for edible vegetable oils.[3] The sharp price declines in edible vegetable oil in 1967 and 1968 reflected temporary surplus supplies of sunflowerseed dumped on world markets by the U.S.S.R. and East European producers, plus ample supplies of soybeans and rapeseed. The only subgroup of fats and oils that has not displayed a long term downward trend is the lauric acid oil group, reflecting the decline in supplies from the tropical less developed countries (down from 2.6 million tons in 1955-57 to 2.3 million

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[1] Tables are found in the Statistical Appendix, p 16.

[2] The share of world trade for Developed countries has increased from 47 to 58 percent between 1961-63 to 1970 while corresponding share for the less developed countries has declined from 44 to 33 percent [16].

[3] The world export price index for all fats and oils (excluding butter) for the base period 1952-54 had declined to a value of 90 by 1968, while the vegetable oil price index was 70 [16].

tons in 1968), coupled with strong demand. Since ample supplies of other fats and oils have prevailed during this shortage of lauric acid oils, there is an apparent low degree of substitution between lauric acid oils and other fats and oils. In 1969 and 1970, exports of sunflowerseed from the Centrally Planned Economies virtually ceased. World output of marine oils, animal fats, groundnuts and rapeseed also fell in 1969. The combined effects of these two events were to hold 1969 world fats and oils supplies constant, while world demand continued to expand, resulting in higher world prices. A further increase of 25 percent in 1970 established a new price record.

The long-run outlook for fats and oils is becoming less optimistic. FAO projections for 1975 estimated a slight surplus of less than 1 percent of projected trade or 117,000 - 123,000 tons [15]. Production and consumption were projected to rise at an annual rate of three percent [15, p. 178]. New projections for 1980, however, indicate a surplus of 23 percent of projected import requirements [17, p. 18] or 2.7 million tons.

On the production side, lauric acid oil supplies are projected to show marked increases as new tree plantings in West Africa, Malaysia and the Philippines come into production. Currently, there are plans to expand production of groundnuts in India and Africa, and sunflowerseed output is expected to increase, especially in Eastern Europe and the U.S.S.R. Output of other soft oils, including rapeseed, is also projected to increase in the developed countries and in Asia and Latin America, [15, p. 169]. If the FAO projected increases in livestock production materialize over the next fifteen years, then supplies of animal fats will also expand. Marine oils and industrial oils are the only subgroup of fats and oils not anticipated to increase production before 1985.

Although world consumption is expected to keep pace with expanding production in future, the world distribution of per capita consumption is expected to alter. The rate of the increase in the developed countries' demand is projected to slow down as near saturation levels are attained, while the effective demand of many less developed countries (LDCs) is projected to increase at a compensatingly higher rate.[1] If, however, rates of economic growth in LDCs fall short of projections, then world fats and oils markets are expected to become clogged with excess supplies. The Centrally Planned Economies' market for imports from the free world is viewed with uncertainty, due to their policy goal of self-sufficiency in foods and raw materials. World supply-demand equilibrium over the next fifteen years implies a rapid expansion in world trade in fats and oils - FAO projections call for an annual increase of 4 to 6 percent, with surpluses in North America, Latin America and tropical Africa being marketed in Western Europe, Japan and the LDCs in Asia and non-tropical Africa.

2.2 World Market for Rapeseed

Rapeseed has been a traditional crop in China, Japan and India since about 2,000 B.C., and in Europe since the thirteenth century, but little inter-

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[1] The per capita compound annual growth in demand during the 1970's for fats and oils is 1.7 percent in developed countries versus 4.1 percent in less developed countries. [17]

national trade occurred until the 1930's. At that time India, Argentina and Romania were the principal exporters, finding markets in Western Europe, especially the UK, and in Japan. Pre-World War II trade was approximated by 100,000 tons, representing only 2.6 percent of total world rapeseed production of 3.75 million tons. In the post-war period Canada and Sweden emerged as new surplus producers and exporters, selling to Western Europe and Japan, while Romania and Argentina concentrated on sunflowerseed and linseed production, respectively. India, the other major pre-war exporter, discontinued exports as increased demand from its expanding population outstripped its increase in rapeseed production.

By 1960, world rapeseed output had reached pre-war levels. International trade by this time figured more prominently, at 420,000 tons, or 11.3 percent of world production. Production expanded rapidly during the 1960's in East and West Germany, France, Poland and Canada, with the latter two countries in the role of principal exporters (Tables 3, 4 and 5). West German and French trade, while significant, was mainly confined to within the Common Market bloc. These five major exporting nations collectively accounted for 84 percent of the expansion in world rapeseed production between 1960 and 1970. China and India, producing 40 percent of total world output in 1969, showed only modest production gains during the 1960's: China remained a marginal and sporadic exporter, whereas India became an occasional importer. In spite of significant increases in world output, during the 1960's, the volume traded only rose from 11.3 to 14 percent of production, this growth being credited mainly to Canada and Poland.

In 1971, rapeseed production ranked fifth in importance within the soft oils group, behind soybeans, sunflowerseed, groundnuts and cottonseed; this compared with eighth place in 1963. In terms of oil equivalent, rapeseed's share of total world fats and oils supplies grew from 3.8 percent in 1962-66 to 5.7 percent in 1971; rapeseed's share of total world vegetable oilseeds output increased from 8.3 percent in 1962-66 to 11.3 percent in 1971. The high degree of substitution among soft oils can be illustrated by measuring the correlation coefficients based on annual price data for each pair of oils (Table 6). The reason for such close substitution between soft oils derives from the similarities of biochemical composition and nutritional qualities [22]. The recently developed erucic acid-free rapeseed varieties bear even closer resemblance to substitute soft oils. This should have the effect of increasing the degree of substitutability between rapeseed and competing soft oils, or in terms of the elements in Table 6, will result in higher correlation coefficients between rapeseed and other soft oils.

Prices of various competing vegetable oilseeds move quite closely together in world markets during the 1960's (Table 7). Sharp increases in available supplies of oilseeds in 1962 and 1968 resulted in lower world prices. The 1968 low point coincided with substantial dumping of Russian and Romanian sunflowerseed onto the Western European market, resulting in a halving of sunflowerseed oil price from the average 1965 level of (U.S.) $292 per metric ton. Ample supplies of rapeseed, soybeans and marine oils also contributed to the downward pressure on prices. Lower supplies of sunflowerseed by the end of the 1968 crop year and throughout the 1969 crop year encouraged higher prices from

mid-1969 not only for sunflowerseed, but also for rapeseed and soybeans. A contributing factor to this upward trend was the short supply of European rapeseed, with continued strong demand there. This factor contributed to an unexpected premium for rapeseed over soybeans in 1969 in European markets for the first time in the 1960's: this position has been maintained throughout 1970 and into 1971, with Canadian No. 1 rapeseed priced at £54.8 per long ton, c.i.f. Rotterdam, against £49.4 per long ton, c.i.f. Rotterdam, for U.S. soybeans in the January to August, 1970 period. This may indicate a lower degree of substitution between rapeseed and soybeans than is generally supposed, at least in the short-run as processors are unwilling to make drastic changes which might meet resistance from consumers. Another possible reason being that rapeseed is processed primarily for its oil and soybeans primarily for meal for livestock feeds, and changes in the relative prices for these by-products are reflected in the demand for the commodity.

Canada has been the principal beneficiary from this increase of £10 per long ton (from £44.8 per long ton, c.i.f. Rotterdam, in 1955 to £54.8 per long ton in January to August, 1970) in world rapeseed prices, being the only exporter with considerable surplus supplies available in both 1969 and 1970. Anticipated lower world rapeseed prices in the 1970 crop year did not materialize, due to continued strong world demand and deficits of sunflowerseed and rapeseed in Europe. Beyond 1970/71, short-run expectations are for continued strength in oilseed prices as stocks are replenished to pre-1969 levels. Canadian erucic acid-free rapeseed varieties may sell at a premium in both domestic and foreign markets, but this will depend on how strong the consumer aversion to erucic acid in rapeseed has actually been in the past.[1]

2.3 The World Market for Canadian Rapeseed

From rapeseed's introduction to the prairies in 1943 until the early 1950's, Canadian rapeseed exports occurred mainly as processed products -- oil and meal. Volume was variable and generally small, averaging about 1,000 tons of oil in the 1950's. 1955 marked the beginning of substantial exports of Canadian rapeseed in seed form. Since then, export growth has been rapid and fairly consistent; exports have expanded commensurately with production, and have typically accounted for two-thirds of Canadian production. From a modest level of 3.67 million bushels in 1956-57, exports of rapeseed reached 46.7 million bushels in 1970-71, with Canada now the world's leading rapeseed exporter. Meanwhile, exports of processed rapeseed oil declined and by 1966 had petered out mainly because Canadian processing capacity had not kept pace with production and demand. Expansion has occurred so that present crushing facilities are more than sufficient to cater for domestic oil and meal requirements. To date, however, only small quantities of oil and meal have been exported.

The UK was Canada's major foreign customer during the 1940's, but by 1949, it found greater favour with alternative oilseeds and rapeseed imports terminated temporarily. This coincided with the low post-war ebb in Canadian

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[1] A Canada Grains Council mission to the EEC and the UK found almost no interest in the erucic acid free varieties of rapeseed [2, p. 165-7].

production and exports. Reconstruction of the Western European and Japanese economies stimulated import demand during the early 1950's, and Canada had established firm markets by 1955 in both the E.E.C. and Japan. These two markets have since been Canada's premier foreign customers, accounting for up to 90 percent of total Canadian rapeseed exports (Table 8).

Japan has been the single most important export market for Canadian rapeseed since 1962 taking 65 percent of total 1969 exports, or 14.39 million bushels, a record for exports to any single country. 1970 exports to Japan increased to 15.8 million bushels but its share of Canadian exports fell sharply to 34 percent. The Japanese market has developed rapidly from zero exports, prior to 1955, and an initial purchase of 630,000 bushels in 1955-56. This trend reflects changing Japanese policy, placing increased reliance on imported foods. Continued declines in Japan's domestic rapeseed production may be expected in the future, in view of recent relaxations of Japanese import tariffs and quotas on rapeseed. Thus the prospects for increased Canadian sales in this market appear to be excellent.

Canada's second largest export market, the E.E.C., is erratic in its purchases. In 1970, it imported 22.6 million bushels, or 48 percent of Canadian exports, as contrasted with less than 1 million bushels in 1967 and 1968 crop years. This situation stems from several factors. First, the common agricultural policy of the E.E.C. covering oils, fats and oilseeds, implemented in July, 1967, introduced deficiency payments to compensate Community producers for differences between target and world market prices. Since rapeseed and sunflowerseed are the only oil bearing seed of any significance grown in the E.E.C., Canada therefore was reduced to a residual supplier, with rapeseed exports fluctuating according to the size of the E.E.C. harvest. Second, Canada faces stiff competition from Polish, East German and Scandinavian rapeseed exporters, and from Russian and Romanian sunflowerseed exporters; these countries are not averse to pricing exports at a level required to assure them of export sales. Nevertheless, prospects for Canadian exports of a substantial, but perhaps variable nature, are good since estimates place the E.E.C.'s capacity to produce their own oilseed requirements at about 10 percent [4].

Lesser markets for Canadian rapeseed exist in the UK, U.S., Taiwan and North Africa. Export sales to these countries are also marked by wide annual variations, reflecting fluctuating domestic production in the importing countries, and the degree to which Canada is competitive with foreign rapeseed producers, and substitute oilseeds and palm oils in both price and quality of product. Domestic production in Taiwan and North Africa (like Japan) is declining or already negligible, while demand continues to rise due to population and income increases. Taiwan was reported [8] to be interested in expanding imports of Canadian rapeseed if cleaner and more finely graded seed can be shipped in the future. The North African market may prove lucrative for Canada, but much depends on the European market situation, since surplus European supplies of rapeseed and sunflowerseed have often been disposed of in Morocco and Algeria in the 1960's. Substantial new export outlets may also occur in the Indian subcontinent if present deficit

trends continue. Prospects of finding new export market outlets are reasonably good, especially in the LDCs. A vigorous export promotion program has been rewarding in Mexico, which bought over 0.5 million bushels in 1970. This example might be repeated in Chile and other Latin American nations, most of which are currently in deficit supply of fats and oils.

It should be noted that while Canadian export growth in the past two years has been dramatic, this performance has been assisted by several factors:

(i) Western European crops of rapeseed have been poor due to adverse weather conditions, causing France to be a net importer, and eliminating Poland and East Germany from the export market;

(ii) Russian and Romanian sunflowerseed supplies were sharply reduced, again as a result of poor weather conditions, and the usual influx of exports to Western Europe did not materialize;

(iii) Groundnuts were in short supply, due mainly to interrupted production in Nigeria;

(iv) The coconut crop in the Philippines was severely reduced due to tropical storms; and

(v) Marine oils were in short supply.

These events proved to be most helpful to Canada in Western Europe, the world's major importing region for fats and oils, but also had side effects in North Africa, where European exports normally compete with Canadian rapeseed. The result was an increase in Canadian rapeseed exports of 55 percent in 1969 and 110 percent in 1970 (Table 8). Such extraordinary conditions in the European market may not last, when domestic European production resumes its former level. One key factor influencing Canada's prospects for retaining present export sales to Western Europe appears to be the new zero-erucic acid varieties

In March 1971 the Canadian Wheat Board (CWB) the body responsible for marketing rapeseed, announced new special provisions for the 1971 crop year to provide for producer deliveries of low erucic acid rapeseed. The principal objective is to facilitate the transition from the production of standard rapeseed varieties to new low erucic acid varieties. Initial delivery quotas on the erucic acid free rapeseeds will be 20 bushels per quota acre, and thereafter will be raised to the extent necessary to enable producers to deliver their full production of erucic acid free rapeseed. The inclusion of the Edmonton terminal as an alternative delivery point for rapeseed future contracts, and provision of cleaning and grading facilities for rapeseed at the Edmonton terminal, plus further storage space allocated to rapeseed at Vancouver will also help to increase marketing efficiency and flexibility. These measures should accelerate domestic and foreign rapeseed marketings, and reduce price fluctuations, thus strengthening and stabilizing Canadian rapeseed's position in the domestic and foreign markets.

2.4 The Canadian Domestic Market for Rapeseed

Domestic disappearance of rapeseed during the 1960's has had a growth rate exceeding that of exports, increasing from 21 percent (2.4 million bushels) of total Canadian production to 35 percent (12.6 million bushels). After discounting disappearance for seed, dockage and wastage, the amount processed into oil and meal grew from 0.96 million bushels in 1960/61 to 7.77 million bushels in 1969/70 (Table 9). The expanding domestic market cushions export fluctuations, thereby increasing the stability of the rapeseed industry, and also improves Canada's balance of trade position by replacing imported oilseeds.

Improvements in production and processing techniques, have been an important element in the rate of this domestic market growth. For example, by altering the fatty acid composition [22] rapeseed now compares more favourably with other oilseeds on a nutritional basis. These improvements in quality of rapeseed products have been reflected in the increasing percentage of total domestic demand for vegetable oils accounted for by rapeseed oil (Table 10), and in the rapid increase in crushings of rapeseed for the production of oil and meal relative to other oilseeds (Table 11).

Use of rapeseed oil in Canada could further expand through either an increase in its share of the total market or simply a consequence of the rapidly growing demand for vegetable oils. While considerable potential for expansion does exist through both of these means, rapeseed oil has met some resistance because of its undesirable chemical properties, which should be considerably reduced with the new rapeseed varieties like Spam. Domestic oil food manufacturers should be using these varieties exclusively by 1973. Most of the potential for expanded demand is in eastern Canada and successful exploitation may require improved processing facilities.

Oilmeal used in the Eastern Canadian livestock feed market now originates largely from domestically produced soybeans and imported soybeans and meal. In the 1970/71 crop year, Canada's net imports of soybean meal equalled its total rapeseed meal production. One of the most critical factors impeding growth in rapeseed meal usage is the nutritional quality aspects. Livestock feeders, especially hog producers, have a traditional aversion to rapeseed meal. Despite the fact that rapeseed meal protein quality (though not the level) is comparable to soybean meal and rapeseed meal may be the most economical protein supplement, in practice, it is unlikely to comprise more than 2.5 percent of a commercial feed mixture.

Increased usage of rapeseed meal in Western Canada may result from increased livestock feeding. The west now produces both a low cost feedgrains and a low cost protein supplement for a complete ration. This could be influenced by government restrictions on interprovincial movements of feedgrains and livestock.

Domestic rapeseed crush in 1971/72 is forecast to increase to a level of 10 - 15 million bushels [1].

Farm level rapeseed price movements over the period 1943 to 1969 are illustrated in Figure 1, together with Canadian soybean farm prices for purposes of comparison between these two close substitutes. Since 1960, the two prices have moved quite closely together. Since 1950 rapeseed prices only exceeded soybean prices on two occasions.

2.5 Rapeseed Production in Canada

Rapeseed was first introduced to the Canadian prairies in 1943, when 3,200 acres were grown to help alleviate the war-time shortages of edible oils, industrial oils and livestock protein feeds. Acreage planted continued to expand after the war, fell to a low ebb of 400 acres in 1950, then rose again more dramatically but somewhat erratically to a record high of 5.48 million acres in 1971 (Table 12). In both 1969-70 and 1970-71, acreage doubled. Rapeseed acreage surpassed that for flaxseed in 1967-68 and 1969-70, to make rapeseed the most extensively grown oilseed crop in Canada, (Table 13). In 1970-71, the only crops grown more extensively than rapeseed in Canada were wheat, barley and oats.

Production technology has improved gradually along with the expanding acreage, with average yields per acre trending upwards, at 0.2 bushels per year (Table 12). Rapeseed farm prices have fluctuated between a low of $1.27 per bushel in 1958 and a high of $2.74 per bushel in 1964, resulting in a total crop value which has been somewhat erratic, but trending upwards. The 1970 crop of 72.2 million bushels has an estimated farm value of 181.2 million dollars.

Of the cropping options open to prairie farmers, rapeseed represents one of the few opportunities for expansion and a viable alternative for at least some of the acreage currently being diverted from wheat. During the past six years (1964/65 - 1969/70) the average gross return per acre from rapeseed has exceeded that from barley, oats, flaxseed, and wheat (Table 14).

Canada's position within the group of rapeseed exporting countries, is a particularly favourable one since this country possesses several biological, technical and marketing advantages over its principal competitors:

(i) The almost ideal soil type and climatic conditions of the Parkbelt region of the prairies are equal or superior to those found in any other country;

(ii) Accumulated expertise in the crop husbandry and production management aspects of rapeseed on the prairies is considerable;

(iii) Canada is a leader in the development of new rapeseed varieties that yield products of superior nutritional quality, improved flavour and better keeping quality such as varieties completely free of erucic acid and very low in eicosanoic acid, both long chain fatty acids that are considered objectionable for edible uses of rapeseed oil [22];

(iv) Canada has a well organized marketing network of internal rail transportation, storage facilities, ports and bulk handling equipment; and

(v) The existence of a rapeseed futures market at the Winnipeg grain exchange indicates the sophistication of rapeseed marketing in Canada.

2.6 FAO Projections of Rapeseed Demand

The existence of FAO projections of world demand and supply of fats and oils, and historical data on the percent of the world market supplied by rapeseed enables some crude estimates of future export demand for Canadian rapeseed.

FAO projects a slight surplus of fats and oils in 1975 and 1985 (Table 15). Rate of production and consumption increase is projected to range between 2.8 to 3.3 until 1975 and 2 to 4 percent from 1975 to 1985. The projected increase in consumption from LDCs is 52 percent during 1965 to 1985, with projected increase in DCs being 9 percent and CPEs 65 percent. Even at the high consumption rates, however LDCs per capita consumption will only be one-half those of the DCs in 1985.

FAO projects that soybeans, groundnuts and lauric acid oils will supply the bulk of the increase in world production to 1975, (Table 16). In comparison, rapeseed supply projections are extremely modest: the 1.88 million tons (oil equivalent) projected for 1975 was already surpassed by 700,000 tons (oil equivalent) in 1971.

To project the export demand for Canadian rapeseed in 1975, the FAO projections for total fats and oils imports for 3 principal foreign markets (Japan, EEC, and All Other Countries) were obtained. These are shown in column (1) of Table 17. Next the trend was calculated of that portion of the total fats and oils market supplied by rapeseed for each of the three markets. This trend was extrapolated to 1975 as illustrated in column (2). The product of these first two columns yields the projected total imports of rapeseed into each of the 3 markets in 1975. Column (3) contains these values. An estimate of Canada's market share in 1975 of these 3 markets was obtained from extrapolating time series data (1955-69) of historical market shares as shown in column (4). The product of columns (3) and (4) is the projected imports of Canadian rapeseed into these three markets in 1975. These estimates were obtained for both high and low FAO per capita income estimates.

For the FAO high income assumption, total Canadian export demand is projected to be 286,130 tons of rapeseed oil equivalent, or 28.61 million bushels, with 20.44 million bushels (or 71 percent of total exports) estimated for the Japanese market. Under the low per capita income assumption, total rapeseed exports from Canada are anticipated to be 253,290 tons of oil equivalent, or 25.33 million bushels, with Japan again expected to account for about 70 percent of total Canadian exports.

These projections for export demand appear to be very conservative in the light of Canada's performance last year in world rapeseed markets (46.7 million bushels in 1970-71). In view of the impending transition to superior

quality zero erucic acid varieties, in which Canada holds a considerable lead over its export competitors, Canadian rapeseed exports can be expected to exceed the figures projected under the high assumption. Nutritional improvements in rapeseed are likely to secure both a higher share of the rapeseed export market for Canada than the 58 percent shown in column (4) of Table 17, (the figure was 70 percent for 1970), and a larger proportion of the world fats and oils export market for rapeseed than the six percent shown in column (2) of Table 17. In addition, Canada may find lucrative export markets for the new zero erucic acid varieties sold as seed to foreign producers, especially during the early and mid 1970's.

3. SUMMARY AND CONCLUSIONS

Recent economic problems of Canadian prairie farmers stem from shrinking export markets for wheat, the traditional mainstay of the prairies, fluctuating fortunes in feedgrain exports, decreased meat prices originating from a livestock inventory build-up designed to reduce surplus feedgrains and poor prospects for flaxseed due to competition from synthetic products. Rapeseed alone has offered the only opportunity for consistent expansion in the prairie agricultural economy since 1966, and this crop in recent years has procured for farmers average gross returns per acre superior to alternative prairie crops. Continued acreage expansion therefore appears highly probable.

Rapeseed must compete with other soft oilseeds in domestic and world markets because of the high degree of substitutability among them. The world oilseed market will consequently determine the fate or fortune of Prairie rapeseed producers. Rapeseed's share of the world market, however, is growing and in 1969 it ranked as the fifth most important vegetable oilseed, after soybeans, sunflowerseed, groundnuts and cottonseed, compared with seventh place in 1960. Nevertheless, its share of the total oils and fats market is only 6 percent and moderate Prairie acreage increases should not seriously affect world prices.

Foreign demand for Canadian rapeseed has grown from 3.6 million bushels in 1956 to 46.7 million bushels in 1970. In 1965, Canada assumed the role of leading world exporter of rapeseed, and by 1969, accounted for over 50 percent of total world exports. Canada's best foreign customer is Japan, a traditional consumer of rapeseed, but whose domestic production is being phased out. With rapidly rising demand, Japan represents the best prospect for expanding Canadian exports. The second best market is the E.E.C. a highly volatile export market, since preference is given to domestic rapeseed producers, and because Canada must compete with subsidized exports of rapeseed and sunflowerseed from east European producers. This could be the market with the greatest potential because of their familiarity with rapeseed and large volume of oilseed imports. Less significant markets exist in the UK, the U.S., the Indian subcontinent, North Africa and Taiwan. New markets, such as Mexico, are being fostered for Canadian rapeseed. Overall export prospects for Canada appear to be good, especially in view of an impending competitive advantage to Canada due to the introduction of Canadian developed erucic acid-free rapeseed varieties.

The Canadian domestic market has been similarly characterized by consistent growth during the 1960's, and prospects for continued expansion, with rapeseed's competitive position in the Canadian oilseeds market also to be enhanced by erucic acid free varieties. A vast potential market exists in Eastern Canada, whose present oil and cake needs are largely met by domestically-grown soybeans and imported oilseeds.

Rapeseed has expanded in the Canadian prairies from 3,200 acres in 1943 to 5.35 million acres in 1971, when it represented Canada's most important oilseed crop, and the fourth most extensively grown crop after wheat, barley and oats.

Exports of rapeseed in 1970/71, at 46.7 million bushels were a record and made rapeseed the third most important agricultural export earner in Canada, behind wheat and tobacco. The bright prospects for expanding demand in foreign and domestic markets make rapeseed the only serious alternative to wheat on Canadian prairie farms. These good prospects are based partly on Canada's past performance in rapeseed markets, and also on several technical, biological and economic advantages that Canada possesses over her competitors.

It has been indicated that fifteen million acres in the Parkbelt region of the Canadian prairies are suitable for rapeseed production. Husbandry considerations preclude continuous monoculture of rapeseed, which implies that potentially 7.5 million acres can be grown in Canada annually. In 1971, with 5.48 million acres, or 70 percent of the total potential, devoted to rapeseed, some scope for further acreage expansion exists. Further research into rapeseed diseases and selective weed control in rapeseed may provide the means to produce rapeseed on a monoculture system, which would then allow 15 million acres to be devoted annually to rapeseed. Breeding more adaptable rapeseed varieties also offers possibilities for expanding acreage beyond the 15 million considered suitable for rapeseed production in 1970. Prairie producers, however, require more reliable intermediate-run (12-18 months) market forecasts as to the potential market dimensions and price levels.

The impact on Canadian rapeseed markets of forthcoming zero erucic acid varieties is an unknown quantity, and no attempt has been made in the quantitative analysis to measure the effects. It is anticipated that zero erucic acid rapeseeds will have a favourable impact on demand - this will immediately confer advantages for Canada, who leads the world in this field, and may result in significant expansion of domestic and overseas rapeseed sales. Considerable effort needs to be expended to acquaint both the domestic and foreign users of rapeseed of the properties of the new varieties of rapeseed.

FAO projections indicate that given current trends the world oilseed market should become increasingly more competitive, as the volume of oilseeds available for export is expected to substantially exceed import demand by 1980. Consequently, the high prices since 1969/70 which are expected to continue in the short-run may be an overly optimistic base on which to plan production strategy. Indeed, the recent high prices may generate a large increase in oilseed production further accentuating expected surplus conditions. Canada is unlikely to be confronted with large carryover stocks as it is undoubtedly possible to price rapeseed competitively in the world market. Producers on the other hand may be unwilling to accept that level of export price.

It is essential that Government policy in the future keep pace with expanding rapeseed production on the prairies. Adequate provision of transportation, storage, and processing facilities will be critical for the successful disposal of annual rapeseed crops in excess of 100 million bushels envisaged, especially in fulfilling export commitments. In particular, more extensive delivery terminal and port terminal storage facilities, and bulk handling equipment are required; greater preference should be given rapeseed in allocation

of railroad car space; the rapeseed delivery quota system should be made more favourable; the Winnipeg futures market could be made to play a far more effective role in settling forward contract sales of rapeseed. In addition the Government could provide invaluable assistance to the industry by encouraging capital investments in rapeseed processing facilities, to enable Canada to export rapeseed in the more lucrative by-product (oil and meal) forms. Failure to appreciate the need for these marketing facilities by the Government and the Canadian Wheat Board will only serve to frustrate the attempts of prairie producers to meet expanding demand for rapeseed at home and abroad.

STATISTICAL APPENDIX 1

Table 1.--Estimated World Production of Fats and Oils, by Type, 1962-71

Type of Oil or Fat	1962-66	1967	1968	1969	1970	1971[1]
	(thousands of short tons)					
Edible Vegetable						
Cottonseed	2,642	2,390	2,415	2,730	2,655	2,720
Groundnut	3,102	3,300	3,505	2,955	3,435	3,770
Soybean	4,480	5,340	5,540	5,940	6,710	6,880
Sunflowerseed	2,802	3,595	3,975	3,980	4,210	4,230
Rapeseed	1,390	1,740	1,880	1,840	2,090	2,580
Sesame Seed	632	620	655	600	635	690
Safflower Seed	192	275	235	185	245	260
Olive Oil	1,289	1,479	1,479	1,487	1,380	1,485
Corn Oil	253	275	265	275	290	295
Sub Total	16,782	19,014	19,949	19,992	21,650	22,910
Palm						
Coconut	2,397	2,314	2,260	2,242	2,210	2,250
Palm Kernel	456	380	395	430	490	515
Palm	1,340	1,275	1,480	1,650	1,885	1,985
Babassu Kernel	61	57	60	65	90	90
Sub Total	4,254	4,026	4,195	4,387	4,675	4,840
Industrial						
Linseed	1,151	1,030	865	1,035	1,230	1,415
Castorbean	350	400	395	405	350	420
Oiticica	17	2	39	7	14	7
Tung	40	156	134	144	129	151
Sub Total	1,658	1,588	1,433	1,591	1,723	1,993
Animal						
Butter (Fat Content)	4,518	4,835	5,180	5,100	5,050	5,000
Lard	4,183	4,410	4,440	4,325	4,310	4,350
Tallow and Grease	4,133	4,595	4,655	4,645	4,700	4,750
Sub Total	12,834	13,840	14,275	14,070	14,060	14,100
Marine						
Whale	277	113	100	90	88	88
Sperm Whale	158	165	165	165	145	143
Fish (inc. Liver)	820	1,190	1,230	1,125	1,147	1,210
Sub Total	1,255	1,468	1,495	1,380	1,380	1,441
Estimated World Total	36,783	39,936	41,347	41,420	43,488	45,284

Source: D.B.S., Oilseeds Review, Cat. No. 22-006, March, 1971.

[1]Forecast, U.S.D.A.

Table 2.--World Trade in Animal and Vegetable Oils, Fats and Margarine, and Oilseeds (Oil Equivalent) in Thousand Metric Tons, 1965.

Exporter \ Importer	U.S.	Canada	Japan	EEC	EFTA	O.D.C.[1]	CPE[2]	LDC[3]	Total
U.S.	-	155	446	790	306	272	221	1,040	3,130
Canada	9	-	84	65	106	13	19	22	318
Japan	22	-	-	74	17	43	1	13	130
EEC	33	3	4	305	189	29	18	157	752
EFTA	12	7	1	126	160	5	23	36	394
ODC[1]	12	5	9	53	174	21	28	80	387
CPE[2]	5	2	66	166	84	37	223	56	639
LDC[3]	458	32	281	1,834	64	121	292	331	4,114
Total	551	204	791	3,413	1,800	544	827	1,735	9,864

Source: USDA World Trade in Selected Agricultural Commodities 1951-65--Vol. V Oilseeds, Oil Nuts and Animal and Vegetable Oils. Foreign Agricultural Economics Report #47, August 1968.

[1] Other Developed Countries

[2] Centrally Planned Economies (USSR, E. Europe and China)

[3] Less Developed Countries

Table 3.--World Rapeseed Production in Major Producing Countries, 1962-70

Country	1962-66	1965	1966	1967	1968	1969	1970
		('000 Metric Tons)					
Canada	344.1	512.6	585.1	560.2	440.0	757.5	1,617.1
India	1,257.0	1,466.4	1,275.7	1,228.0	1,567.7	1,572.1	1,507.1
Pakistan	311.9	306.8	278.4	306.8	396.3	352.6	384.0
China	635.0	700.0	735.0	800.0	786.0	688.0	721.0
Japan	142.1	125.5	94.6	79.2	68.4	48.0	30.1
Poland	361.4	504.0	448.0	651.0	712.0	204.0	525.0
East Germany	178.8	213.8	210.8	272.6	265.4	136.6	200.0
Sweden	146.6	216.5	86.5	223.6	228.4	183.0	163.5
E.E.C.	364.2	464.2	438.5	578.9	648.0	687.6	814.3
World Total	3,995.1	4,801.2	4,443.2	5,021.6	5,403.7	4,920.0	6,259.1

Source: USDA, Foreign Agricultural Service, World Agricultural Production and Trade, Dec. 1970.

Table 4.--World Trade in Rapeseed by Major Exporters and Importers, 1962-1968

Country	1962	1963	1964	1965	1966	1967	1968
	('000 long tons)						
Exporters:							
Canada	192	139	81	238	312	331	323
China	-	1	-	6	30	30	10
Denmark	25	43	48	37	31	20	7
France	81	70	118	124	129	102	115
Netherlands	4	13	12	5	10	8	20
Poland	21	4	-	59	87	105	173
Sweden	15	30	48	72	17	21	58
Other	7	5	14	16	26	24	NA
World Total	345	305	321	557	642	641	NA
Importers:							
Belgium	4	1	2	4	3	4	3
France	15	11	7	4	8	5	18
West Germany	31	45	32	99	90	67	106
Italy	102	90	64	130	207	218	147
Netherlands	13	5	3	16	8	19	19
E.E.C.	(165)	(152)	(108)	(253)	(316)	(313)	(293)
Japan	36	86	75	100	208	212	246
Algeria	52	73	65	58	53	53	NA
UK	7	8	12	32	42	40	79
India/Pakistan	5	3	8	25	21	6	5
Other	12	21	37	60	59	29	NA
World Total	277	343	305	528	669	653	NA

Source: Commonwealth Secretariat, Vegetable Oils and Oilseeds Review, London.

Table 5.--World Trade in Rapeseed Oil by Principal Countries, 1962-68

Country	1962	1963	1964	1965	1966	1967	1968
	('000 long tons)						
Exporters:							
France	9.7	6.9	11.5	31.8	43.0	35.1	28.5
West Germany	8.9	13.5	14.1	24.1	25.4	30.4	62.2
Netherlands	1.2	1.3	0.4	1.2	2.9	2.9	6.7
E.E.C. Total	(19.8)	(21.7)	(26.0)	(57.1)	(71.3)	(68.4)	(97.4)
China	-	-	-	3.7	35.0	16.0	13.0
Japan	0.4	2.5	2.3	3.6	10.6	9.3	6.0
Poland	-	4.2	-	7.7	20.8	54.6	51.0
Sweden	18.1	14.7	8.7	16.2	13.8	21.8	24.9
Other	0.5	0.8	2.4	0.8	5.8	1.0	0.8
World Total	38.8	43.9	39.4	89.1	157.3	171.1	193.1
Importers:							
Belgium	0.4	0.3	0.4	0.9	1.9	2.0	9.7
France	0.1	4.8	1.1	1.3	2.2	1.4	6.6
West Germany	4.8	3.3	4.6	7.5	22.0	27.1	26.8
Italy	1.6	1.0	0.2	0.6	1.4	19.4	23.0
Netherlands	5.4	5.9	4.0	11.0	14.2	9.4	29.8
E.E.C. Total	(12.3)	(15.3)	(10.3)	(21.3)	(41.7)	(59.3)	(95.9)
UK	2.0	3.7	0.2	0.3	-	-	10.7
U.S.A.	1.8	1.4	2.6	2.0	3.3	3.8	4.3
Algeria	6.0	6.5	6.7	10.0	18.0	7.0	NA
Morocco	3.9	-	-	-	10.6	-	NA
Other	5.6	11.7	13.6	24.3	52.3	51.7	NA
World Total	31.6	38.6	33.4	57.9	125.9	121.8	NA

Source: Commonwealth Secretariat, Vegetable Oils and Oilseeds, London.

Table 6.--Correlation Coefficients of Soft Oil Prices

	Groundnut	Cotton Seed	Sesame & Sunflower	Soybean	Rapeseed
Groundnut	1.0		0.71	0.78	0.86
Cottonseed		1.0		0.75	0.72
Sesame & Sunflower			1.0	0.90	0.78
Soybean				1.0	0.84
Rapeseed					1.0

Source: FAO, Study Group on Oilseeds, Fats and Oils, Fourth Session, Rome, 1968 (based on price data for the period 1950-66).

Table 7.--Price Movements of Oilseeds in the Western European Market, 1960-70

	Cottonseed[1]	Groundnuts[1]	Linseed[2]	Palm Kernels[1]	Rapeseed[3]	Soybeans[4]
			(£ per Long Ton)			
1960	35.3	71.6	52.8	52.4	46.5	33.4
1961	36.3	71.0	54.3	49.6	46.2	39.7
1962	32.0	62.0	53.7	49.5	38.6	36.5
1963	33.5	62.5	49.3	55.5	44.0	39.9
1964	36.3	67.8	49.3	54.7	-	40.1
1965	37.9	74.9	48.2	65.0	44.8	42.3
1966	37.7	67.8	46.4	56.4	47.2	46.0
1967	-	65.6	50.4	59.6	45.5	41.7
1968	35.8	70.3	60.4	74.7	44.6	48.2
1969	38.5	87.5	57.6	64.6[5]	47.6[5]	45.4
1970	-	97.03	53.3	70.5[5]	54.8[5]	51.3

Source: F.A.O., Monthly Bulletin of Agricultural Economics and Statistics, 1960-71.

[1] Nigerian, c.i.f. European Ports

[2] Canadian No. 1, c.i.f., London

[3] Canadian 40%, c.i.f., European Ports

[4] U.S. No. 2, Yellow, European Ports, c.i.f.

[5] January to August average

Table 8.--Canadian Exports of Rapeseed, to Major Markets, for Crop Years, 1955-1970

Crop Year	Japan	E.E.C.	U.K.	U.S.A.	Taiwan	N. Africa	Total[1]
			('000 bushels)				
1955	630.0	N.A.	N.A.	N.A.	-	-	N.A.
1956	-	3,470.9	117.2	13.1	-	22.1	3,666.2
1957	739.5	5,461.2	63.2	1.4	-	-	6,351.5
1958	975.8	4,617.1	22.4	2.5	-	-	5,669.8
1959	2,289.0	145.1	30.7	1.7	-	472.0	2,938.5
1960	877.0	5,686.6	169.1	14.4	-	1,342.0	8,089.5
1961	1,231.0	4,983.9	146.5	2.3	-	556.0	6,919.2
1962	3,080.0	2,103.9	72.8	38.6	-	414.4	5,709.8
1963	4,436.0	355.5	91.8	126.2	209.1	-	5,308.4
1964	3,724.0	3,160.3	326.1	2.4	48.5	-	9,276.5
1965	6,986.0	5,684.2	162.2	6.4	-	-	13,632.3
1966	8,404.0	4,517.5	157.6	5.4	165.5	568.0	13,817.7
1967	10,197.0	630.8	-	30.1	1,450.4	-	12,308.7
1968	10,909.0	390.8	-	97.7	1,799.2	1,115.0	14,311.2
1969	14,390.5	4,908.4	697.7	9.3	-	717.1	22,212.6
1970	15,823.7	22,570.3	298.9	8.4	-	509.3	46,700.0

Source: D.B.S., Grain Trade of Canada, (Cat. No. 22-201) and D.B.S., Oilseeds Review, (Cat. No. 22-006)

[1] Includes exports to all other countries

Table 9.--Canadian Domestic Disappearance of Rapeseed, and Production of Oil and Meal, 1958-59 to 1970-71

Year	Domestic Crushings ('000 bu.)	Oil Produced (million lbs.)	Meal Produced ('000 tons)	Seed Requirements ('000 bu.)	Total Domestic Disappearance ('000 bu.)
1958-59	761.3	13.8	11.4	34	
59-60	225.6	4.1	3.3	122	1,190
60-61	959.8	16.9	14.9	114	2,380
61-62	1,313.8	24.3	20.2	59	2,030
62-63	1,615.8	30.8	24.1	76	2,560
63-64	1,574.1	30.8	23.2	127	2,820
64-65	2,156.4	42.4	31.5	230	3,480
65-66	3,745.5	73.4	54.0	278	7,137
66-67	4,963.0	99.4	70.8	278	9,303
67-68	5,159.1	103.5	74.2	162	8,295
68-69	6,933.8	140.5	98.2	326	9,943
1969-70	7,768.0	153.0	114.2	599	12,623
1970-71	8,469.2	166.6	132.2	710	19,168

Source: D.B.S., Oilseeds Review, (Cat. No. 22-006) and
D.B.S., Coarse Grains Quarterly, (Cat. No. 22-001)

Table 10.--Canadian Domestic Production of Deodorized Oils to Manufacture Margarine, Shortening, Salad and Cooking Oils, 1967 to 1970

	1967	% of Vegetable	1968	% of Vegetable	1969	% of Vegetable	1970	% of Vegetable
	millions of lbs.							
Coconut	27.6	6.8	24.6	5.8	25.4	5.5	29.5	6.3
Corn	24.4	6.0	24.7	5.9	23.5	5.1	25.1	5.4
Cottonseed	9.1	2.2	7.3	1.7	16.5	3.6	25.5	5.4
Palm	19.9	4.9	18.8	4.4	29.2	6.4	21.5	4.6
Palm Kernel	9.4	2.3	9.6	2.3	10.0	2.2	9.9	2.1
Peanut	26.8	6.6	24.8	5.9	18.1	3.9	16.1	3.4
Rapeseed	101.7	25.1	116.7	27.6	135.5	29.6	130.3	27.8
Soybean	153.7	37.9	146.2	34.6	153.9	33.6	182.9	39.0
Sunflower	33.0	8.1	48.3	11.4	46.1	10.0	28.0	6.0
Other Vegetable	0.1	0.0	1.2	0.4	0.3	0.1	0.1	0.0
Total Vegetable Oils	405.8	100%	422.1	100%	458.8	100%	468.9	100%
Marine Oils	51.7		55.4		62.3		37.7	
Animal Oils	75.7		77.1		69.8		81.0	
Total all Species	533.2		544.6		590.8		587.6	

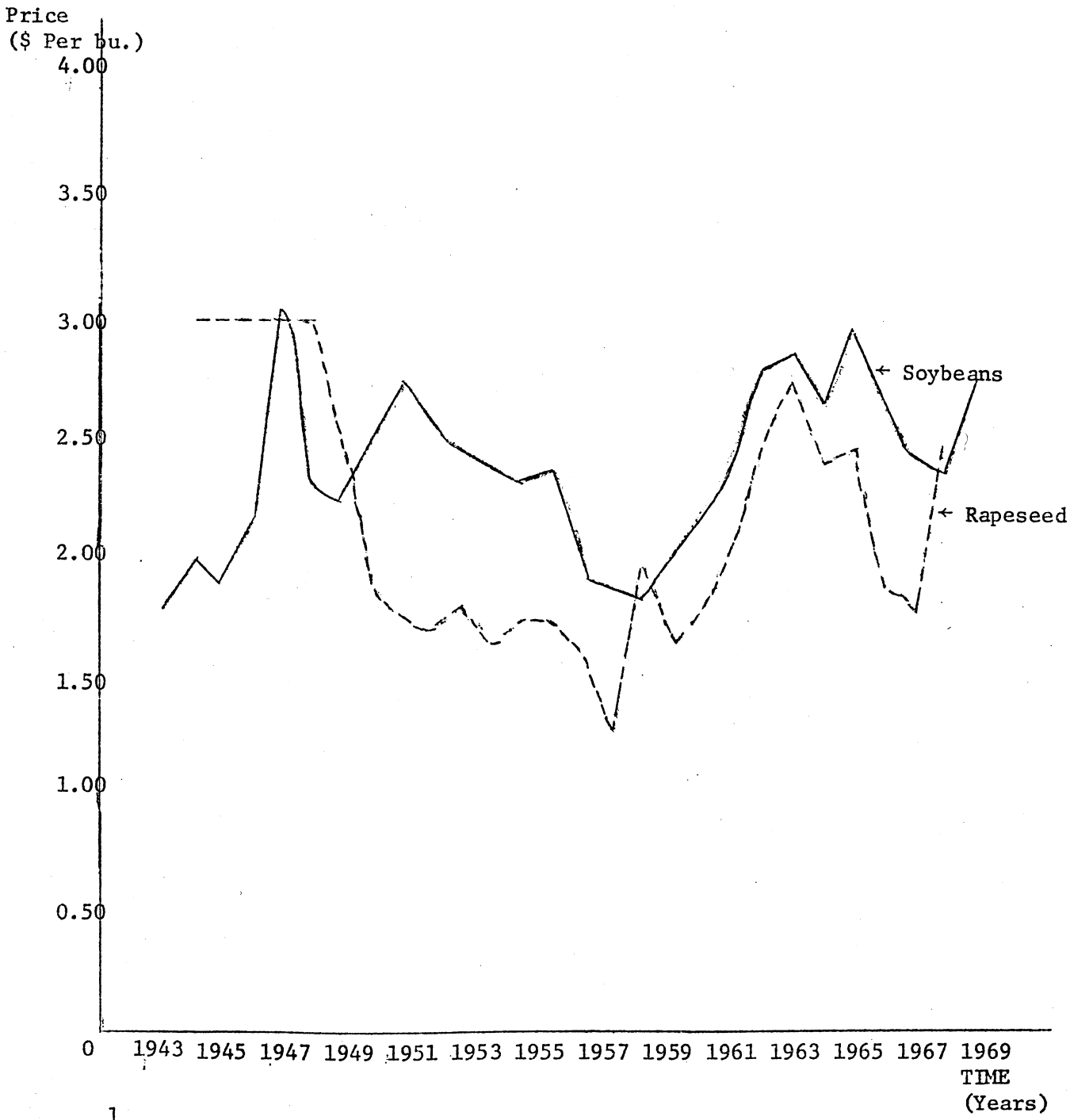
Source: D.B.S., Oil and Fats, (Cat. No. 32-006)

Table 11.---Canadian Crushings of Vegetable Oilseeds and Production of Oil and Meal, 1958-59 to 1970-71.

Crop Year	Flaxseed			Rapeseed			Soybeans		
	Crushings (m. bu.)	Oil Produced (m. lbs)	Meal Produced ('000 tons)	Crushings (m. bu.)	Oil Produced (m. lbs)	Meal Produced ('000 tons)	Crushings (m. bu.)	Oil Produced (m. lbs.)	Meal Produced ('000 tons)
1958	3.30	64.4	57.2	0.76	13.8	11.4	14.91	154.9	352.9
1959	2.61	51.1	44.9	0.23	4.1	3.3	17.08	184.3	400.6
1960	2.92	57.6	50.5	0.96	16.9	14.9	16.28	173.8	380.6
1961	2.46	47.9	42.9	1.31	24.3	20.2	16.92	176.8	396.1
1962	2.53	49.1	43.1	1.62	30.8	24.1	17.86	183.6	418.5
1963	2.75	53.2	47.8	1.57	30.8	23.2	18.61	192.7	441.5
1964	2.90	55.7	50.9	2.16	42.4	31.5	19.54	201.1	464.9
1965	2.63	51.4	44.9	3.75	73.4	54.0	20.65	205.3	491.4
1966	2.54	50.5	43.7	4.96	99.4	70.8	19.88	201.5	474.4
1967	2.27	44.9	39.1	5.16	103.5	74.2	19.85	199.0	472.3
1968	2.09	41.0	35 8	6.93	140.5	98.2	20.05	204.0	476.3
1969	2.49	48.0	43.5	7.77	153.0	114.2	23.68	240.6	558.7
1970	2.83	54.7	49.8	8.47	168.6	132.2	23.4	241.3	549.2

Source: Dominion Bureau of Statistics, Oilseeds Review, Cat. No. 22-006

Figure 1.--Price Movements of Rapeseed[1] and Soybeans[2] in the Canadian Market, 1943 to 1969.



[1] Rapeseed prices in $ per bushel, at farm, crop year averages

[2] Soybean prices in $ per bushel, at farm, calendar year averages

Source: Dominion Bureau of Statistics, Quarterly Bulletin of Agricultural Statistics, Cat. No. 21-003.

Ontario Department of Agriculture and Food, Agricultural Statistics for Ontario, 1969, Publication 20.

Table 12.--Canadian Rapeseed Acreage, Yield, Production and Value, 1943-44 to 1971-72

Crop Year	Acreage ('000 acres)	Yield (bushels)	Production ('000 bu.)	Farm Price per bu. ($)	Total Value ('000)
1943-44	3.2	13.9	44	3.00[1]	133
44-45	10.8	11.3	122	3.00[1]	367
45-46	12.5	13.4	168	3.00[1]	504
46-47	23.5	11.0	259	3.00[1]	778
47-48	58.3	7.5	438	3.00[1]	1,314
48-49	80.0	16.0	1,280	3.00[1]	3,840
49-50	20.0	17.0	340	2.50	850
1950-51	0.4	6.0	2	1.90	5
51-52	6.5	18.5	120	1.75	210
52-53	18.5	15.0	278	1.70	473
53-54	29.5	16.6	491	1.80	884
54-55	40.0	14.4	578	1.65	954
55-56	138.0	11.3	1,558	1.75	2,727
56-57	351.9	17.0	5,996	1.75	10,494
57-58	617.5	14.0	8,661	1.60	13,858
58-59	626.0	12.4	7,762	1.27	9,858
59-60	213.5	16.7	3,571	2.00	7,120
1960-61	763.0	14.6	11,111	1.65	18,348
61-62	710.3	15.8	11,199	1.80	20,196
62-63	371.2	15.8	5,864	2.04	11,963
63-64	478.0	17.5	8,360	2.52	21,067
64-65	791.0	16.7	13,230	2.74	36,309
65-66	1,435.0	15.7	22,600	2.41	54,360
66-67	1,525.0	16.9	25,800	2.47	63,760
67-68	1,620.0	15.2	24,700	1.92	47,506
68-69	1,052.0	18.4	19,400	1,83	35,484
69-70	2,012.0	16.6	33,400	2.29	76,494
1970-71	4,050.0[2]	17.8[2]	72,200[2]	2.51	181,222
71-72	5,475.0[2]	18.4[2]	100,600[2]		

[1] Fixed Canadian Wheatboard Prices under 1943 Order in Council

[2] October 1 estimates

Source: Dominion Bureau of Statistics, Handbook of Agricultural Statistics Part 1, Field Crops, 1908-58. Cat. No. 21-501.

Dominion Bureau of Statistics, Quarterly Bulletin of Agricultural Statistics, Cat. No. 21-003.

Table 13.--Acreage, Yield and Production of Canada's Principal Oilseeds, 1960-61 to 1970-71

	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
Rapeseed											
Acreage[2]	763	710	371	478	791	1,435	1,525	1,620	1,052	2,012	4,050
Yield/acre[3]	14.6	15.8	15.8	17.5	16.7	15.7	16.9	15.2	18.4	16.6	17.8
Production[4]	11.1	11.2	5.9	8.4	13.2	22.6	25.8	24.7	19.4	33.4	72.2
Flaxseed											
Acreage[2]	2,577	2,075	1,414	1,682	1,977	2,314	1,917	1,023	1,524	2,441	3,368
Yield/acre[3]	8.9	6.9	11.1	12.6	10.3	12.6	11.5	9.2	12.9	12.6	14.5
Production[4]	23.0	14.3	15.7	21.1	20.3	29.2	22.0	9.3	19.7	30.7	48.9
Soybeans											
Acreage[2]	256	212	221	228	231	265	279	290	295	322	335
Yield/acre[3]	22.1	31.3	29.9	2..9	30.2	30.3	32.3	27.9	30.6	23.8	31.0
Production[4]	5.7	6.6	6.6	5.0	6.9	8.0	9.0	8.1	9.0	7.7	10.4
Sunflowerseed											
Acreage[2]	34.5	33.9	23.0	42.0	82.5	68.0	53.0	45.8	40.0	48.0	70.5
Yield/acre[3]	28.7	26.7	25.2	31.5	16.0	14.3	20.7	26.17	20.7	23.5	25.8
Production[4]	0.99	0.90	0.58	1.32	1.32	0.97	1.10	1.20	0.83	1.13	1.8

[1] Estimated

[2] Thousands of acres

[3] Bushels

[4] Millions of bushels

Source: D.B.S., Quarterly Bulletin of Agricultural Statistics, Cat. No. 21-003

Table 14.--Average Gross Farm Income from Production of Prairie Grain Crops, 1964-65 to 1969-70

	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70
	($ per acre)					
Flaxseed	29.69	33.88	31.00	27.72	36.86	30.23
Rapeseed	45.75	37.84	41.74	29.18	33.67	37.99
Wheat	31	38.14	48.75	31.43	28.99	34.36
Barley	30.10	36.26	42.42	26.36	29.24	25.39
Oats	28.15	35.19	35.00	27.58	27.96	26.30

Source: D.B.S., Quarterly Bulletin of Agricultural Statistics, Cat. No. 21-003

Table 15.--Fats and Oils (including Butter), World Balance by Zones, 1975 Projected, ('000 tons of fat content)

Zone	Production	Total Demand	Deficit (+) or Surplus (-)
(i) Low Assumption			
Developed Countries	19,463	20,353	890
Centrally Planned Economies	11,678	12,945	1,267
Developing Countries	14,513	12,233	-2,280
World Total	45,654	45,531	-123
(ii) High Assumption			
Developed Countries	19,661	20,789	1,128
Centrally Planned Economies	12,663	14,299	1,636
Developing Countries	16,591	13,710	-2,881
World Total	48,915	48,798	-117

Source: F.A.O. Agricultural Commodities - Projections for 1975 and 1985, Volume 1, Rome, 1967.

Table 16.--FAO Projected World Production of Fats and Oils for 1975[1], and Average Production, 1961-63 (million short tons, fat or oil equivalent)

Type of Oil or Fat	1961-63	1975
Butter	4.51	5.95
Lard	4.94	6.42
Lauric Acid Oils		
Coconut	2.08	2.62
Palm kernel	0.48	0.61
Total	2.56	3.23
Soft Oils		
Groundnut	2.56	4.02
Soybean	3.83	6.51
Cottonseed	2.21	2.91
Rapeseed	1.29	1.88
Sunflowerseed	1.98	3.29
Olive Oil	1.30	1.49
Total	13.17	20.10
Hard Oils		
Marine Oils	1.02	0.81
Palm Oil	1.17	1.78
Tallow	3.55	4.80
Total	5.74	7.39
Industrial Oils	1.29	1.44
Total all Fats & Oils	33.04	45.65

[1] Low per capita income assumption

Source: F.A.O., Agricultural Commodities Projections for 1975 and 1985, Vol. 1, p. 168, Rome 1967.

Table 17.--1975 Projected Demand for Canadian Rapeseed in Principal Export Markets

Export Market	F.A.O. Projected Demand for Imports of Fats and Oils	Rapeseed Imports as Proportion of Total	Projected Imports of Rapeseed	Market Share for Canada	Projected imports of Canadian Rapeseed
	(1)	(2)	(3)	(4)	(5)
(i) High Income Assumption					
Japan	1,262	0.18	227.16	.90	204.44
E.E.C.	2,409	0.06	144.54	.40	57.81
All Other Countries	3,980	0.03	119.40	.20	23.88
Total	7,651	0.06	491.10	.58	286.13
(ii) Low Income Assumption					
Japan	1,078	0.18	194.04	.90	174.63
E.E.C.	2,355	0.06	141.30	.40	56.52
All Other Countries	3,690	0.03	110.70	.20	22.14
Total	7,123	0.06	446.04	.57	253.29

Sources and Notes

Column (1) - FAO, Agricultural Commodities - Projections for 1975 and 1985. (Rome 1967), in thousand tons of oil content.

Column (2) - Trend in market share extrapolated to 1975.

Column (3) - Column (1) times column (2).

Column (4) - Trend extrapolated to 1975.

Column (5) - Column (3) times column (4).

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