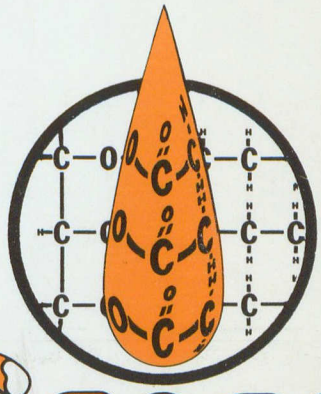

Fats & Oils in Canada

ANNUAL REVIEW 1978

DEPARTMENT OF INDUSTRY, TRADE AND COMMERCE

FATS AND OILS IN CANADA

ANNUAL REVIEW

1978

Prepared by:

Grain Marketing Office

Department of Industry, Trade and Commerce

Ottawa, Ontario

Canada K1A 0H5

Cat. No. Id 21-2/1978

ISBN 0-662-10664-4

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CHAPTER I

CANOLA MEAL (LOW GLUCOSINOLATE RAPESEED MEAL) IN RATIONS FOR LIVESTOCK AND POULTRY

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The most important factor that has contributed to expansion in usage of rapeseed meal in feeds for livestock and poultry in recent years has been the development of low glucosinolate type rapeseed seed by Canadian and European plant breeders. Releases of low glucosinolate varieties of rapeseed in Canada have made it possible for Canadian farmers to rapidly expand production of this type of rapeseed. In the latter regard, about 50 per cent of the 1978 Canadian rapeseed crop of 3.4 million tonnes was of low glucosinolate type. It is expected that in 1979 60-65 per cent of Canada's rapeseed crop will be of low glucosinolate type. Estimates on the size of the 1979 rapeseed crop range to 200 million bushels. The low glucosinolate varieties that will be grown commercially in Canada in 1979 are Tower, Regent, Altex and Candle.

Since much of the 1979 Canadian rapeseed crop is expected to be of low glucosinolate type and since meal derived from such seed is much superior for feeding purposes to meal produced from the high glucosinolate type rapeseed which is still grown in most other countries of the world, the Canadian rapeseed industry has settled on the name "Canola Meal" to identify rapeseed meal produced from Canadian low glucosinolate type rapeseed.

COMPOSITION

Protein and Amino Acids. The protein content of rapeseed meal derived from Candle rapeseed is approximately 35% while that from Tower, Regent and Altex rapeseed is 38 to 39%. The amino acid composition (Table 1) of low glucosinolate rapeseed meal does not differ from that of high glucosinolate rapeseed meal. However, some evidence has been obtained by Summers et al., at the University of Guelph, which suggests that the availability of amino acids is improved in low glucosinolate rapeseed meal compared to that in high glucosinolate rapeseed meal. From the point of view of amino acids in rapeseed meal versus those in soybean meal, it is well recognized that rapeseed meal is lower in lysine and higher in sulphur containing amino acids than soybean meal. As a consequence, these two protein-rich feedstuffs tend to complement each other when used together in rations.

Ether Extract. The ether extract from Canadian rapeseed meal tends to be higher than that from soybean meal. This is because, in Canada, rapeseed gums are usually added back to rapeseed meal at about the 1½% level. Experimentally, addition of as much as 6% of rapeseed gums to rapeseed meal has been shown to have no detrimental effects on the feeding value of rapeseed meal for broilers (Table 2) or layers (Table 3). Addition of rapeseed gums to rapeseed meal increases the energy value of the rapeseed meal and in this respect should actually be beneficial.

Minerals. Generally speaking, rapeseed meal is a richer source of minerals than soybean meal. However, it has been shown by Bragg et al., at the University of British Columbia, in studies with chicks, that the availabilities of the minerals in rapeseed meal are lower than in soybean meal. In spite of the lower availabilities of minerals in rapeseed meal versus those in soybean meal, rapeseed meal is still a better source of available calcium, iron, manganese, phosphorus, selenium and magnesium than soybean meal, while soybean is a better source of available copper, zinc and potassium than rapeseed meal.

Glucosinolates. The glucosinolate content of low glucosinolate rapeseed meal is only about one-eighth to one-tenth that of high glucosinolate rapeseed meal. In this regard, in the University of Alberta laboratories, 10 samples of Tower and 3 samples of Candle rapeseed meal were found to contain 1.04 and 0.62 mg/g of glucosinolates whereas Bell et al., have reported average values for high glucosinolate - B. napus and high glucosinolate - B. campestris rapeseed meals of 8.5 and 6.3 mg/g respectively. While the glucosinolates present in low glucosinolate rapeseed meal do cause minor thyroid enlargement, the effect on the thyroid glands is not considered to have practical significance.

Energy. A serious drawback to the use of rapeseed meal in rations for poultry has been the low metabolizable energy value assigned to this feedstuff for this class of livestock (Table 4). The value of 1760 kcal/kg previously suggested for poultry has been thought by numerous researchers to be too low. On the basis of data collected recently in Canada on the metabolizable energy value of Tower rapeseed meal, it would appear that 1900 kcal/kg and 2000 kcal/kg are appropriate metabolizable energy values to use for growing and adult poultry, respectively.

USE IN RATIONS FOR LIVESTOCK

One of the main drawbacks of high glucosinolate rapeseed meal for ruminants and swine has been its low palatability. Fortunately, this problem has, for all practical purposes, been resolved by the introduction of low glucosinolate rapeseed meal. Research in Canada at various universities and experimental stations has shown that low glucosinolate rapeseed meal is much more palatable to cattle and swine than high glucosinolate rapeseed meal.

Cattle and Sheep. High glucosinolate rapeseed meal has been reasonably well accepted as a feedstuff for inclusion in rations for cattle. Canadian-type high glucosinolate rapeseed meal has been used successfully at levels of 20%, 5% and 10% of the dry matter in rations for calves, dairy cows and beef cattle. Efforts to decrease palatability problems by addition of molasses or "feed flavor" to high glucosinolate rapeseed meal by Ingalls and Sharma (1975) resulted in only a slight increase in feed intake of rations containing high glucosinolate rapeseed meal.

However, the latter workers showed that the inclusion of up to 24% of low glucosinolate rapeseed meal (Bronowski) in the grain mix of dairy cows did not affect milk yield or composition adversely. Fisher and Walsh (1976) fed dairy cows grain mixtures which contained 0, 11, 22 and 34% low glucosinolate rapeseed meal (Tower) and concluded that low glucosinolate rapeseed meal derived from the Tower variety could be included up to the 22% level in grain mixes for dairy cows without appreciably affecting productive traits. In an experiment with dairy cows Sharma et al., (1977) have demonstrated that the inclusion of 25% of low glucosinolate rapeseed meal (Tower) had no adverse effects on feed consumption, milk yield or milk composition. It would appear from the above that low glucosinolate rapeseed meal may be safely fed in the grain mixture of dairy cows at twice the previously recommended level for high glucosinolate rapeseed meal.

Table 1. Amino acids in rapeseed meal and soybean meal[1/]

	High glucosinolate rapeseed meal	Low glucosinolate rapeseed meal	Soybean meal
Arginine	6.01	5.84	6.44
Cystine	0.97	1.15	0.65
Glycine	4.74	5.00	4.60
Histidine	2.75	2.73	2.40
Isoleucine	3.65	4.00	4.69
Leucine	6.51	7.00	7.49
Lysine	5.54	5.59	6.22
Methionine	1.75	1.75	1.40
Phenylalanine	3.76	4.02	4.80
Threonine	4.26	4.55	3.80
Tryptophane	1.23	1.16	1.20
Valine	4.81	5.10	5.00

1/ Expressed as % of N x 6.25

Table 2. Rapeseed gums on performance of broilers[1/]

	Soybean meal ration			Rapeseed meal ration	
% gums in meal	0	2	6	2	6
Body wt, g	803	813	809	788	807
Feed/gain	1.63	1.63	1.60	1.63	1.63

1/ Four groups of 20 broiler-type chicks on each gum-containing ration, eight groups on zero gum ration. Four week test period.

Table 3. Rapeseed gums on the performance of layers[1/]

% gums in rapeseed meal	Shaver Starcross 288			Hyline W36		
	0	2	6	0	2	6
HHP, %	71.9	72.8	71.2	71.6	71.1	73.1
Feed, kg/Doz	1.93	1.94	1.92	1.95	1.89	1.87
Egg weight, g	59.4	59.5	59.7	57.3	57.7	57.6
Haugh units	77.2	77.6	78.5	73.3	70.6	72.0
Specific gravity	1.080	1.081	1.081	0.087	1.083	1.083
Mortality, %	4.5	4.5	2.5	3.5	2.5	2.5

1/ Duplicate groups of 100 pullets of each strain were placed on each ration. Ration 1 contained 10% of Tower rapeseed meal. Rations 2 and 3 contained 10% Tower rapeseed meal to which either 2 or 6% of rapeseed gums was added. 48 week test period.

Table 4. Energy content of rapeseed meal and soybean meal[1/]

		Rapeseed meal, as fed	Soybean meal(45.8%), as fed
Cattle	DE, kcal/kg	2830	3178
Swine	DE, kcal/kg	2900	3300
Cattle	ME, kcal/kg	2400	2606
Chickens	ME, kcal/kg	1900	2249
Swine	ME, kcal/kg	2700	2825
Cattle	TDN, %	64	72
Swine	TDN, %	66	75

1/ Rapeseed meal values based on Canadian data, soybean meal values taken from United States - Canadian Tables of Feed Composition.

Swine. At a symposium on rapeseed meal held in Vancouver last year Aherne et al., (1977) reviewed the many published papers and progress reports to which he had access which dealt with the use of rapeseed meal in rations for growing pigs. After giving due consideration to the research reviewed he concluded that for starting, growing and finishing pigs low glucosinolate rapeseed meal (Tower) could be included in starting and growing rations at the 10% level and as the sole source of supplementary protein in rations for finishing pigs.

High glucosinolate rapeseed meal has had a bad image as a feedstuff for breeding pigs. Results obtained in the past on rapeseed meals of varying glucosinolate content have suggested that problems observed in breeding pigs have been related to the glucosinolate contents of the meals. This is borne out by two experiments recently conducted in Canada. In the first experiment Flipot et al., (1977) fed gilts rations containing 10% of low glucosinolate rapeseed meal (Tower) or a comparable level of soybean meal throughout gestation and lactation and found that the gilts fed the low glucosinolate rapeseed meal containing ration performed just as well as those fed soybean meal. In another study by Hartsock (unpublished) low glucosinolate rapeseed meal (Tower) was supplied as the sole source of supplementary protein from 60 kg liveweight through the first lactation. No significant differences were noted in services per conception or litter size at birth or at weaning between the low glucosinolate rapeseed meal fed

gilts. These results suggest that low glucosinolate rapeseed meal is a satisfactory source of protein for breeding pigs and that no reduction in performance is likely to occur from use of high levels of same in rations for gilts and sows during gestation and lactation.

USE IN RATIONS FOR POULTRY

Broiler Chicken. Previously it was recommended that Canadian high glucosinolate rapeseed meal be used in chicken broiler rations at levels up to 15% of the ration. This recommendation was based on many experiments in which high glucosinolate rapeseed meals were used. Slinger at the University of Guelph, compared the performance of broilers fed isocaloric and isonitrogenous rations based on corn using low glucosinolate rapeseed meal (Tower) made by the pre-press solvent and direct solvent procedures. A summary of the results obtained is given in Table 5. Inclusion of 10 or 20% of Tower rapeseed meal, processed by either procedure, in the ration was found to have no adverse effect on rate of growth or feed efficiency at 8 weeks of age. Thyroid size was not affected by feeding either level of low glucosinolate rapeseed meal.

Two experiments were conducted at the University of Alberta in which levels of 10, 20 and 30% of low glucosinolate rapeseed meal (Tower or Candle) were included in wheat-based broiler rations. The rations were kept isocaloric and isonitrogenous. The results obtained (Table 6) indicated that growth and feed efficiency were just as satisfactory on rations containing up to 30% of either Tower or Candle rapeseed meal as on the control ration containing soybean meal. The chickens fed low glucosinolate rapeseed meal from either variety of rapeseed had somewhat larger thyroids than those fed the control ration containing soybean meal but there were no apparent adverse effects from the enlargement that occurred.

Based on results such as those referred to above, it may be concluded that rapeseed meal derived from Canadian low glucosinolate rapeseed may be used in broiler rations at least at the 20% level of inclusion without producing adverse effects on productive traits.

Table 5. Effect of low glucosinolate rapeseed meal - broilers[1/]

Rations	Wt gain, g	Feed/gain	mg Thyroid/100g body wt
Control (corn-soybean meal)	1631	1.99	7.4
10% Tower rapeseed meal	1695	1.97	8.1
20% Tower rapeseed meal	1699	1.93	8.5
10% Tower rapeseed meal	1695	1.96	9.1
20% Tower rapeseed meal	1684	1.93	9.2

1/ University of Guelph data. Eight week test period.

Table 6. Effect of low glucosinolate rapeseed meal - broilers[1/]

Rations	Wt gain, g	Feed/gain	mg Thyroid/ 100g body wt
SBM Control	1888	2.33	9.5
10% Tower Rapeseed meal	1939	2.31	14.0
20% Tower Rapeseed meal	1942	2.29	16.6
30% Tower Rapeseed meal	1938	2.32	17.1
10% Candle Rapeseed Meal	1931	2.32	12.3
20% Candle Rapeseed meal	1942	2.32	14.7
30% Candle Rapeseed meal	1891	2.36	15.1

1/ Values represent averages for two experiments involving three groups of 40 broiler-type chicks (20 male and 20 female) in one experiment and three groups of 34 broiler-type chicks (17 male and 17 female) in the other. Eight week test period.

Table 7. Effect of low and high glucosinolate rapeseed meal - layers

Exp[1/]	Rations	HHP,%	Egg wt, g	Feed,kg/ Doz	Mort,%	Mg Thyroid/ 100g body wt
1	Control (wheat-SBM)	79.6	59.7	1.86	3.4	7.8
	5% LG-RSM	78.5	59.8	1.83	5.8	13.5
	10% LG-RSM	81.3	59.0	1.78	4.0	19.4
	5% LG-RSM	81.5	59.4	1.82	1.8	10.2
	10% LG-RSM	80.5	59.1	1.80	5.4	11.8
2	Control (wheat-SBM)	72.0	62.4	1.93	4.1	8.5
	5% LG-RSM	71.1	62.3	1.99	4.1	11.0
	10% LG-RSM	71.9	62.5	1.93	3.1	15.9
	15% LG-RSM	72.2	61.7	1.94	5.8	19.4
3	Control (wheat-SBM)	81.6	59.2	1.74	1.1	7.9
	10% LG-RSM	81.6	59.6	1.72	1.4	14.6
	12.5% LG-RSM	79.1	59.4	1.76	2.1	17.9
	15% LG-RSM	78.6	59.0	1.70	4.3	16.7
	10% HG-RSM	76.8	59.2	1.75	4.3	104.6
	15% HG-RSM	74.9	58.8	1.81	3.5	103.8

1/ In experiments 1 and 3, two groups of 35 and two groups of 70 Shaver Starcross 288 White Leghorns were placed on each ration. In experiment 2, 4 groups of 44 Shaver Starcross 288 White Leghorns were placed on each ration. 44 week test period.

Table 8. Effect of low glucosinolate rapeseed meal - layers[1/]

Rations	HHP,%	Egg wt, g	Feed,kg/doz	Mort,%
Control (corn-SBM)	77.6	57.0	1.69	6
15% Tower (CVO) RSM	82.0	55.1	1.54	4

1/ University of Guelph data. Twenty week test period.

Laying and Breeding Chickens. Previously it was recommended that Canadian high glucosinolate rapeseed meal be used in chicken laying and breeding rations on feeding trials which indicated that inclusion of 10% of high glucosinolate rapeseed meal in laying rations increased

mortality, decreased egg production and affected egg size, and Haugh unit values to a minor degree while 5% high glucosinolate rapeseed meal in the ration produced no adverse effects on productive traits.

Several experiments have been conducted at the University of Alberta and the University of Guelph to evaluate the use of Canadian low glucosinolate rapeseed meal in rations for laying chickens. The results of such experiments (Tables 7 and 8) indicated that at least 10% of Canadian low glucosinolate rapeseed meal may be incorporated in rations for laying chickens without adversely affecting mortality, egg production, feed conversion or egg size. Even the use of 15% of Tower rapeseed meal had little, if any, adverse effects on productive traits. Although feeding low glucosinolate rapeseed meal resulted in some increase in thyroid size, level of mortality and productive performance were not affected. In contrast, in groups fed 10 or 15% of high glucosinolate rapeseed meal (Table 7) thyroid size was greatly increased and productivity was significantly reduced.

CONCLUSION

On the basis of our present knowledge of Canola meal it seems reasonable, assuming protein supplement cost relationships are favourable, to recommended the usage levels shown in Table 9.

Table 9. Recommended levels of use for Canadian rapeseed meal

	High glucosinolate, %	Low glucosinolate, %
Chickens		
Starter, grower	15	20
Layer, breeder	5	10
Turkeys		
Starter, grower	10	20
Breeder	10	10
Swine		
Starter, grower, finisher	5	10
Breeder	3	*
Cattle		
Calves (of dry matter)	20	20
Dairy cows (of dry matter)	5	10
Beef (of dry matter)	10	10

* May be used as the sole source of supplementary protein.

CHAPTER 2

WORLD PRODUCTION AND TRADE IN FATS, OILS AND MEALS

World Oils And Fats: Calculated Production

World production of oils and fats in 1979 is forecast at 55 million tonnes, compared to a revised estimate of 52.7 million tonnes for 1978.

The increase for 1979 stems entirely from the edible vegetable oils and palm oils categories; other sectors show declines for 1979 compared to 1978 production levels.

Vegetable oil production from annual oilseeds plus olive oil accounts for 54.7 per cent of total oils and fats production in 1979. Animal fat production continued at a stable level of 14.6 million tonnes in 1979.

World Production of Oilmeals

Estimates of oilmeal production for crop year 1977/78 indicate a sharp increase of some 12 per cent over 1976/77. Much of the increase is comprised of soymeal which accounts for 61.7 per cent of total world output of 82.3 million tonnes.

Cottonseed meal and sunflowerseed meal also showed significant increases in 1977/78 over 1976/77.

Table 1

WORLD OILS AND FATS: CALCULATED PRODUCTION[1/]

(Thousands of Tonnes)

EDIBLE VEGETABLE OILS	1975	1976	Estimated 1977	Forecast 1978	Forecast 1979
Cottonseed	3 219	2 766	2 945	3 383	3 231
Peanut	3 183	3 584	3 184	3 085	3 356
Soybean	8 325	10 177	9 131	11 214	12 128
Sunflower	3 989	3 665	3 730	4 612	4 918
Rapeseed	2 713	2 857	2 271	2 987	3 508
Sesame	603	630	591	646	677
Safflower	217	320	201	283	280
Olive [2/]	1 419	1 783	1 330	1 362	1 530
Corn	297	412	410	445	455
TOTAL	23 965	26 194	23 793	28 017	30 083
PALM OILS [3/]					
Coconut	2 918	3 314	3 059	3 221	2 974
Palm Kernel	508	522	553	573	632
Palm	2 910	3 082	3 354	3 421	3 946
Babassu	105	125	90	95	100
TOTAL	6 441	7 043	7 056	7 310	7 652
INDUSTRIAL OILS					
Linseed	745	792	722	964	929
Castor	339	306	330	411	411
Oiticica	11	15	14	14	14
Tung	108	100	95	110	95
Olive Residue [4/]	132	185	145	153	164
TOTAL	1 335	1 398	1 306	1 652	1 613

ANIMAL FATS	1975	1976	Estimated 1977	Forecast 1978	Forecast 1979
Butter (Fat Content)	4 572	4 690	4 879	4 930	5 000
Lard	4 430	4 145	4 297	4 324	4 355
Tallow, Grease	4 411	5 141	5 419	5 383	5 250
TOTAL	13 313	13 976	14 595	14 637	14 605
MARINE OILS					
Whale	45	45	40	40	35
Sperm Whale	119	119	110	110	100
Fish (Including Liver)	1 003	953	882	910	910
TOTAL	1 167	1 117	1 032	1 060	1 045
GRAND TOTAL	46 221	49 728	47 782	52 676	54 998

1/ Years indicated are those in which most of given oil was produced. Includes oil equivalent of seed production.

2/ Excludes olive residue oil.

3/ Estimated on basis of exports and other information.

4/ Includes quantities of refined oil for edible purposes.

SOURCE: United States Department of Agriculture, FOP 16-78.

Table 2

MAJOR OILS & FATS: WORLD PRODUCTION, DISAPPEARANCE, AND STOCKS[1/]

(Thousand Tonnes)

Primarily for Food:

Soybean Oil	1974/75	1975/76	1976/77	1977/78[2/]	1978/79[2/]
Opening Stocks[3/]	805	833	1 190	985	1 195
Production	8 294	10 242	10 017	11 625	11 850
Disappearance[4/]	8 266	9 885	10 222	11 415	11 745
Ending Stocks[3/]	833	1 190	985	1 195	1 300
Cottonseed Oil					
Opening Stocks[3/]	210	240	210	190	210
Production	2 971	2 547	2 738	3 018	2 930
Disappearance[4/]	2 941	2 577	2 758	2 998	2 910
Ending Stocks[3/]	240	210	190	210	230
Groundnut Oil					
Opening Stocks[3/]	290	305	440	405	340
Production	2 604	3 195	2 748	2 609	2 760
Disappearance[4/]	2 589	3 060	2 783	2 674	2 730
Ending Stocks[3/]	305	440	405	340	370
Sunflower Oil					
Opening Stocks[3/]	500	780	440	235	360
Production	3 899	3 411	3 394	4 252	4 740
Disappearance[4/]	3 619	3 751	3 599	4 127	4 580
Ending Stocks[3/]	780	440	235	360	520
Rapeseed Oil					
Opening Stocks[3/]	205	225	240	270	285
Production	2 444	2 616	2 809	2 661	3 020
Disappearance[4/]	2 424	2 601	2 779	2 646	2 950
Ending Stocks[3/]	225	240	270	285	355
Sesame Oil					
Opening Stocks[3/]	47	44	45	45	44
Production	651	611	625	629	634
Disappearance[4/]	654	610	625	630	633
Ending Stocks[3/]	44	45	45	44	45

Olive Oil[5]	1974/75	1975/76	1976/77	1977/78[2]	1978/79[2]
Opening Stocks[3]	268	421	710	710	740
Production	1 561	1 764	1 461	1 526	1 600
Disappearance[4]	1 408	1 475	1 461	1 496	1 540
Ending Stocks[3]	421	710	710	740	800
Coconut Oil					
Opening Stocks[3]	250	323	355	330	325
Production	2 490	3 094	2 752	2 857	2 740
Disappearance[4]	2 417	3 062	2 777	2 862	2 700
Ending Stocks[3]	323	355	330	325	365
Palm Kernel Oil					
Opening Stocks[3]	65	70	73	77	65
Production	473	503	555	498	565
Disappearance[4]	468	500	551	510	550
Ending Stocks[3]	70	73	77	65	80
Palm Oil					
Opening Stocks[3]	256	333	353	510	490
Production	2 450	2 650	2 934	2 930	3 340
Disappearance[4]	2 373	2 630	2 777	2 950	3 240
Ending Stocks[3]	333	353	510	490	590
Butter, Fat Content					
Opening Stocks[3]	886	867	975	1 038	1 162
Production	5 165	5 368	5 556	5 631	5 650
Disappearance[4]	5 184	5 250	5 493	5 507	5 562
Ending Stocks[3]	867	975	1 038	1 162	1 250
Lard					
Opening Stocks[3]	243	260	250	265	270
Production	4 054	3 714	3 881	4 032	4 160
Disappearance[4]	4 037	3 724	3 866	3 027	4 145
Ending Stocks[3]	260	250	265	270	285
Fish Oil					
Opening Stocks[3]	289	350	330	327	310
Production	1 047	984	959	975	1 010
Disappearance[4]	986	1 004	962	992	1 000
Ending Stocks[3]	350	330	327	310	320

Food Oils & Fats, Total	1974/75	1975/76	1976/77	1977/78 2/	1978/79 2/
Opening Stocks 3/	4 314	5 051	5 611	5 387	5 796
Production	38 103	40 689	40 429	43 243	44 999
Total Supplies	42 417	45 740	46 040	48 630	50 795
Disappearance 4/	37 366	40 129	40 653	42 834	44 285
Ending Stocks 3/	5 051	5 611	5 387	5 796	6 510
Primarily for Non-Food:					
Linseed Oil					
Opening Stocks 3/	115	117	150	182	170
Production	598	638	703	753	780
Disappearance 4/	596	605	671	765	800
Ending Stocks 3/	117	150	182	170	150
Castor Oil					
Opening Stocks 3/	110	150	120	80	87
Production	372	314	304	345	355
Disappearance 4/	332	344	344	338	340
Ending Stocks 3/	150	120	80	87	102
Tallow & Greases					
Opening Stocks 3/	490	436	459	495	525
Production	5 241	5 573	5 845	6 005	5 880
Disappearance 4/	5 295	5 550	5 809	5 975	5 870
Ending Stocks 3/	436	459	495	525	535
Tung Oil					
Opening Stocks 3/	29	30	20	17	18
Production	107	108	106	101	105
Disappearance 4/	106	118	109	100	105
Ending Stocks 3/	30	20	17	18	18
GRAND TOTAL					
Opening Stocks 3/	5 058	5 784	6 360	6 161	6 596
Production	44 421	47 322	47 387	50 447	52 119
Total Supplies	49 479	53 106	53 747	56 608	58 715
Disappearance	43 695	46 746	47 586	50 012	51 400
Ending Stocks 3/	5 784	6 360	6 161	6 596	7 315

FOOTNOTES TO

MAJOR OILS & FATS: WORLD PRODUCTION, DISAPPEARANCE, AND STOCKS[1/]

1/ October-September

2/ Preliminary

3/ Estimated

4/ Estimated of the balance

SOURCE: "Oil World", Hamburg, November 10, 1978.

Table 3

WORLD PRODUCTION OF OILMEALS [1]

(Thousand Tonnes)

	1973/74	1974/75	1975/76	1976/77 [2]	1977/78 [3]
Soybean Meal	38 781	36 917	44 683	43 545	50 795
Cottonseed Meal	9 731	9 788	8 416	8 997	9 934
Groundnut Meal	3 540	3 605	4 429	3 825	3 669
Sunflower Meal	4 725	4 408	3 936	4 012	5 047
Rapeseed Meal	3 883	3 894	4 149	4 360	4 170
Sesame Meal	795	766	722	740	745
Copra Meal	1 214	1 460	1 805	1 617	1 665
Palm Kernel Meal	505	554	591	649	593
Linseed Meal	1 286	1 166	1 244	1 350	1 460
Fishmeal & Solubles	4 092	4 586	4 531	4 325	4 230
GRAND TOTAL	68 552	67 144	74 506	73 420	82 308

1/ October-September crop year. Actual production in the countries where the crush is taking place, and in the period shown, irrespective of whether from new crop or old.

2/ Preliminary

3/ Estimated

SOURCE: "Oil World", Hamburg, November 10, 1978.

CHAPTER 3

CANADIAN OILSEED PRODUCTION, AND TRADE IN FATS AND OILS

Canadian Oilseeds: Acreage, Yield, Production

Canada produces four oilseed crops: rapeseed, flaxseed, soybeans and sunflowerseed. Mustardseed is also produced, not for its oil content but rather as a condiment and mainly for export in unprocessed form.

Rapeseed production increased sharply in 1978 to 3.35 million tonnes, largely because of attractive price levels vis-a-vis competing crops.

Flaxseed production was down slightly in 1978, at 538 500 tonnes, due to reduced acreage coupled with slightly lower yields.

Soybean production, almost entirely in Ontario, fell to 475 134 tonnes, due to sharply reduced yields.

Sunflowerseed production, at 113 853 tonnes, was up from the previous year and the highest in recent years.

Mustardseed production, at 103 420 tonnes was 30 per cent above 1977 production levels.

Canadian Imports of Fats And Oils

Imports of edible vegetable oils declined in 1978, mainly due to a decrease in palm oil imports. Animal fat imports were steady while marine oil imports increased slightly.

Imports of inedible oils and fats doubled to 9 870 tonnes, mainly animal oils.

Canadian Exports of Fats And Oils

Statistics Canada reported rapeseed oil exports in 1978 of 82 348. Industry sources state that this figure is approximately 50 000 tonnes too low i.e. actual exports were about 130 000 tonnes.

Rapeseed oil and inedible tallow were the only significant export items in this sector.

Canadian Crushings of Oilseeds And Production of Oil And Meal By Crop Year

The volume of rapeseed crushed in 1977/78 increased by 15 per cent to 630 300 tonnes. The soybean crush volume increased by 6 per cent to 728 400 tonnes. Data on flaxseed and sunflowerseed crushings is not available.

Table 4

CANADIAN OILSEEDS: AREA, YIELD, PRODUCTION

	1974	1975	1976	1977	1978	1974	1975	1976	1977	1978
	(Thousands of Hectares)					(Yield Per Hectare, Kilograms)				
Flaxseed	587	567	324	596	518	599	788	857	1 091	1 040
Rapeseed	1 279	1 628	720	1 453	2 806	907	1 002	1 165	1 359	1 201
Soybeans	168	158	153	202	263	1 662	2 318	1 628	2 546	1 802
Mustardseed	142	66	32	74	98	817	746	983	1 058	1 036
Sunflowerseed	9	25	20	68	87	954	1 172	1 166	1 167	1 290
	Production (Tonnes)					Oil Equivalent (Tonnes)				
Flaxseed	350 538	444 613	276 900	650 300	538 500	124 091	157 361	105 209	230 206	190 629
Rapeseed	1 163 476	1 723 668	836 900	1 973 100	3 349 700	487 496	722 217	350 661	826 729	1 403 524
Soybeans	280 045	366 808	250 400	517 100	475 134	50 408	66 025	45 072	93 078	85 524
Mustardseed	117 935	50 122	35 200	79 380	103 420	-	-	-	-	-
Sunflowerseed	8 255	29 937	24 000	80 967	113 853	3 302	11 975	9 600	32 387	45 541

Oil Conversion Factors:
Flaxseed..... 35.4%
Rapeseed..... 41.9%
Soybeans..... 18.0%
Sunflowerseed..... 40.0%
Mustardseed..... Not Applicable

SOURCE: Statistics Canada, Catalogues # 22-002; 22007.

Table 5

CANADIAN OILSEED PRODUCTION BY PROVINCE

	AREA (Thousand Hectares)			YIELD PER ACRE (Bushels)			PRODUCTION (Tonnes)		
	1976	1977	1978	1976	1977	1978	1976	1977	1978
FLAXSEED									
Manitoba	212	304	304	12.0	17.3	16.7	160 028	330 217	317 517
Saskatchewan	81	243	182	17.0	17.8	17.8	86 400	271 794	203 211
Alberta	30	49	32	16.0	15.8	18.8	30 500	48 263	38 102
RAPESEED									
Manitoba	101	202	425	18.0	25.6	24.3	102 059	290 302	578 336
Saskatchewan	304	587	1 133	22.8	25.5	22.9	387 800	839 155	1 451 510
Alberta	304	627	1 170	19.7	22.9	21.0	335 700	805 135	1 383 471
British Columbia	11	36	73	17.9	18.9	15.0	11 300	38 556	61 236
SOYBEANS									
Ontario	153	202	263	24.3	38.8	26.9	251 741	527 366	475 138
SUNFLOWERSEED									
Manitoba	20	67	82	1 060	1 061	1 182	24 047	79 379	108 863
MUSTARDSEED									
Manitoba	7	16	25	800	900	1 032	6 500	16 330	29 030
Saskatchewan	19	40	53	894	1 050	854	19 000	47 628	50 349
Alberta	9	17	20	973	810	1 060	9 700	15 422	24 041

SOURCE: Statistics Canada, Catalogue No. 22-002.

Table 6

CANADIAN IMPORTS OF FATS AND OILS

(Tonnes)

PRIMARILY EDIBLE					
Vegetable Oils	1974	1975	1976	1977	1978
Soybean Oil	33 614	20 881	31 205	28 138	28 069
Cottonseed Oil	11 333	11 289	5 200	5 497	4 723
Corn Oil	10 358	10 172	16 418	15 482	19 707
Peanut Oil	5 519	6 848	6 734	6 845	6 460
Coconut Oil	21 956	25 816	29 647	24 218	22 313
Palm Oil	16 199	41 283	55 001	31 179	23 205
Palm Kernel Oil	4 376	5 093	10 351	7 192	7 252
Olive Oil	2 408	1 987	5 096	4 840	2 814
Cocoa Butter	5 378	4 362	5 008	4 835	3 562
Sunflowerseed Oil	186	170	271	59	171
Vegetable Oils & Fats NES	5 973	2 965	3 156	2 270	3 235
Vegetable Cooking Fats & Packaged Salad Oils	1 461	693	144	423	163
TOTAL	118 766	131 559	168 231	130 978	121 674
Animal Fats					
Lard	17 680	12 118	19 246	17 841	13 106
Butter 1/	19 754	4 565	12	13	4 165
TOTAL	37 435	16 683	19 258	17 854	17 271
Marine Oils					
Fish & Marine Oil	849	879	299	410	654
TOTAL	849	879	299	410	654
TOTAL EDIBLE OILS & FATS	157 050	149 121	187 788	149 242	139 599

PRIMARILY INEDIBLE	1974	1975	1976	1977	1978
Castor Oil	1 850	1 909	1 313	1 311	1 684
Tung Oil	425	692	734	699	680
Inedible Tallow[2/]	3 509	1 668	832	590	398
Animal Oil & Fats	808	487	652	568	4 810
Animal Grease[3/]	2 612	4 154	1 700	1 790	2 298
TOTAL INEDIBLE OILS & FATS	9 205	8 910	5 231	4 958	9 870
TOTAL EDIBLE & INEDIBLE FATS & OILS IMPORTS	166 256	158 031	194 332	154 200	149 469

1/ Butter imports have been converted to oil equivalent, using the factor of 81%.

2/ This class includes both edible and inedible tallow. The proportions are not known.

3/ This category includes Animal Grease, NES and Wool Grease and Lanolin.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 7

CANADIAN EXPORTS OF FATS AND OILS

(Tonnes)

PRIMARILY EDIBLE Vegetable Oils	1974	1975	1976	1977	1978
Soybean Oil	8 148	2 074	--	23	1 406
Rapeseed Oil	27 669	19 811	42 501	102 700	82 348
Margarine & Shortening	352	268	706	634	1 559
Vegetable Oil & Fats	763	944	6 974	1 413	3 512
TOTAL	36 932	23 097	50 181	104 770	88 825
Animal Fats					
Butter (Oil Equiv.)[1/]	3	23	2 861	273	189
TOTAL	3	23	2 861	273	189
Marine Oils					
Herring Oil	5 524	2 277	5 315	4 124	3 679
Whale Oil	--	--	5	14	11
TOTAL	5 524	2 277	5 320	4 138	3 690
PRIMARILY INEDIBLE					
Linseed Oil	592	3 562	5 108	5 717	8 099
Inedible Tallow[2/]	98 740	97 871	109 884	140 829	138 053
Marine Oils[3/]	2 338	2 615	4 789	11 902	5 707
Animal Fats & Oils	2 718	1 463	3 282	6 931	5 062
TOTAL INEDIBLE FATS AND OILS	104 388	105 511	123 063	165 379	156 921
TOTAL EDIBLE & INEDIBLE FATS & OILS	146 847	130 900	181 425	274 560	249 625

FOOTNOTES TO

CANADIAN EXPORTS OF FATS AND OILS

1/ Butter exports have been converted to oil equivalent, using the factor of 81%.

2/ This class includes both edible and inedible tallow. The proportions are not known.

3/ Marine oil exports listed under "Inedible Oils" include sun-rotted cod liver oil, a non-specified group of fish and marine oil, and fish liver and visceral oils. While most of these oils can be assumed to be of an inedible grade, a small quantity of edible soy may have been included.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 8

CANADIAN CRUSHINGS OF VEGETABLE OILSEEDS AND PRODUCTION OF OIL AND MEAL BY CROP YEAR

(Tonnes)

CRUSHINGS	1973/74	1974/75	1975/76	1976/77	1977/78
Flaxseed	19 346	x[1/]	x[1/]	x[1/]	x[1/]
Rapeseed	334 414	275 973	347 161	549 714	630 300
Soybeans	642 310	635 110	722 988	684 995	728 400
Sunflowerseed	28 212	7 134	20 029	x[1/]	x[1/]
TOTAL	1 024 282	918 217	1 090 178	1 234 709	1 358 700
OIL PRODUCTION					
Flaxseed	6 601	x[1/]	x[1/]	x[1/]	x[1/]
Rapeseed	125 631	108 483	141 698	225 805	259 000
Soybeans	109 169	108 344	122 694	115 616	125 600
Sunflowerseed	11 234	2 671	8 328	x[1/]	x[1/]
TOTAL	252 635	219 498	272 720	341 421	384 600
MEAL PRODUCTION					
Flaxseed	11 932	x[1/]	x[1/]	x[1/]	x[1/]
Rapeseed	193 932	157 763	197 376	314 903	357 500
Soybeans	503 368	499 183	569 467	540 689	575 400
Sunflowerseed	10 558	2 553	7 266	x[1/]	x[1/]
TOTAL	719 790	659 499	774 109	855 592	932 900

[1/] Confidential - to meet secrecy requirements of the Statistics Act.

SOURCE: Statistics Canada, Catalogue No. 22-007.

CHAPTER 4

THE CANADIAN RAPESEED SITUATION

Canadian Rapeseed Production

Production in crop year 1977/78 rebounded to nearly 2 million tonnes. Stocks on August 1, 1977 were extremely low due to a high level of exports and domestic crush during the 1976/77 crop year. A similar situation prevailed in the 1977/78 crop year, with exports exceeding 1 million tonnes and a domestic crush of 630 000 tonnes. In 1978, a further large increase in production occurred, to 3.35 million tonnes compared to 1.98 million tonnes in 1977. A further increase is anticipated in 1979, in response to favourable prices.

Exports of Rapeseed

In 1978, rapeseed exports increased by approximately 20 per cent to 1.2 million tonnes. Japan took over 800 000 tonnes, and India 207 000 tonnes.

Exports of Rapeseed Oil

The official Statistics Canada export figure of 82,348 tonnes is thought by exporters to be too low by some 45-50 000 tonnes. A review is being conducted and revised figures will appear in the 1979 edition.

Exports of Rapeseed Meal

Rapeseed meal exports increased substantially in 1978 to 170 990 tonnes. Western Europe and Japan were the principal market outlets. The growth in exports is due to increased crushing capacity in Western Canada, improved meal quality, and the depreciated Canadian dollar.

Table 9

CANADIAN SUPPLY AND DISPOSITION OF RAPESEED

RAPESEED OIL AND RAPESEED MEAL

(Crop Year)

RAPESEED	1973/74	1974/75	1975/76	1976/77	1977/78
			(Tonnes)		
Stocks, Starting	468 974	280 912	399 913	1 048 648	199 000
Production	1 206 568	1 163 476	1 748 616	836 886	1 973 100
Exports	888 664	592 987	683 026	1 017 871	1 013 600
Domestic Crushings	334 414	275 968	347 160	549 714	630 300
RAPESEED OIL					
Exports	34 488	19 240	32 633	91 648	73 500
Domestic Production	125 631	108 483	141 698	225 806	259 000
RAPESEED MEAL					
Exports	47 580	10 672	27 984	107 088	156 300
Domestic Production	193 932	157 763	197 376	314 903	357 500

SOURCE: Statistics Canada, Catalogue No. 22-006, 22-007.

Table 10

CANADIAN EXPORTS OF RAPESEED

(Tonnes)

DESTINATION	1974	1975	1976	1977	1978
Algeria	--	--	--	38 266	74 498
Australia	14 739	--	--	5	--
Bangladesh	18 012	47 688	25 662	17 530	28 969
Belgium-Luxembourg	358	508	--	248	1 000
Brazil	12	--	--	27	1
Czechoslovakia	--	--	--	--	2 500
Denmark	--	--	--	18	73
Finland	--	--	103	82	116
France	--	--	--	1 519	755
Germany, West	23 418	5 651	15 058	66 843	50 364
India	4 521	14 142	--	13 650	207 013
Italy	896	2 008	2 956	1 930	--
Japan	493 947	579 385	687 076	746 082	801 229
Korea, South	--	--	7 268	--	162
Mexico	38 731	--	--	--	--
Mozambique	--	--	--	7 700	--
Netherlands	20 680	18 426	16 682	111 876	36 545
Norway	--	--	--	2 656	--
Singapore	--	--	--	12 887	--
Spain	--	919	4	70	253
Sweden	-- 1/	56	211	104	1
Switzerland	--	3 953	--	--	2 794
United Kingdom	999	3 324	13 358	5 884	1 365
United States	104	123	6 491	563	466
Venezuela	--	9	--	--	27
Yugoslavia	--	--	--	3	1
TOTAL	615 975	676 199	774 873	1 027 943	1 208 132

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-004.

Table 11

CANADIAN EXPORTS OF RAPESEED OIL

(Tonnes)

DESTINATION	1974	1975	1976	1977	1978
Algeria	--	--	--	3 216	--
Australia	538	122	--	2 917	3 314
Bangladesh	--	--	5 542[3]	7 000	9 014
Chile	--	--	--	--	500
Ecuador	--	--	--	504	--
Egypt	--	--	745	2 160[4]	--
Germany, West	--	--	--	2 217	--
Haiti	--	--	--	2 434	--
Hong Kong	--	590	2 069	5 133	5 592
India	13 237[1]	9 438[2]	23 248[3]	66 794[5]	45 994[7]
Japan	3 381	3 019	8 481	6 415	12 516
Khmer Rep.-Laos	--	--	--	--	14
Lebanon	--	--	290	650[6]	--
Leeward-Windward Is.	--	--	--	--	14
Madagascar	--	--	--	284[7]	--
Mexico	--	--	--	--	178
Morocco	--	--	--	--	2 818
Mozambique	--	--	--	--	515
Netherlands	--	3 202	--	--	--
New Zealand	--	--	--	--	118
Nicaragua	--	--	--	--	7
Portugal	--	--	--	123	--
South Korea	--	--	--	--	104
Tunisia	--	--	--	131[8]	--
United Kingdom	1 240	2 476	--	--	--
United States	8 268	963	2 124	2 064	1 650
Viet Nam	--	--	--	728	--
Yemen	--	--	--	20	--
Zambia	1 002	--	--	--	--
TOTAL	27 669	19 811	42 501	102 700	82 348[9]
TOTAL VALUE ($'000)	14 133	15 683	23 081	61 907	53 414

1/ CIDA reports 13 694 tonnes shipped under bilateral food aid in the crop year 1973/74.

2/ CIDA reports 7 364 tonnes shipped under bilateral food aid in the crop year 1974/75.

3/ CIDA reports 17 455 tonnes shipped under bilateral food aid in the crop year 1975/76.

FOOTNOTES TO

CANADIAN EXPORTS OF RAPESEED OIL

4/ CIDA reports 3 500 tonnes shipped under bilateral food aid in the crop year 1976/77.

5/ CIDA reports 35 081 tonnes shipped under bilateral food aid in the crop year 1977/78.

6/ CIDA reports 1 328 tonnes shipped under World Food Program in the crop year 1977/78.

7/ CIDA reports 491 tonnes shipped under World Food Program in the crop year 1977/78.

8/ CIDA reports 707 tonnes shipped under World Food Program in the crop year 1977/78.

9/ This figure is preliminary. Total exports in 1978 are estimated by industry to approximate 145 000 to 150 000 tonnes. Statistics Canada will publish the correct figure later in 1979.

SOURCE: Statistics Canada, Catalogue No. 65-004.

Table 12

CANADIAN EXPORTS OF RAPESEED OILCAKE AND MEAL

(Tonnes)

DESTINATION	1974	1975	1976	1977	1978
France	--	--	--	3 675	--
Cuba	--	--	--	1 005	--
Denmark	--	--	--	4 532	--
Germany, West	16	1 965	4 686	57 565	94 005
Ireland	--	--	--	1 000	--
Japan	--	--	121	4 001	11 822
Korea, South	--	--	--	--	--
Mexico	5 811	--	--	--	--
Netherlands	10 738	5 756	26 941	7 967	6 209
Norway	--	--	--	24 395	30 666
Philippines	609	--	--	--	--
Taiwan	--	--	--	2 051	5 699
United Kingdom	7 620	12 392	16 127	21 968	21 597
United States	5 840	552	3 696	8 232	992
TOTAL	30 911	20 666	51 573	136 393	170 990
TOTAL VALUE ($'000)	3 218	2 115	6 089	19 639	25 056

SOURCE: Statistics Canada, Catalogue No. 65-004.

Table 13

QUALITY DATA FOR WESTERN CANADIAN RAPESEED

SURVEY SAMPLES OF 1977 AND 1978 CROPS

	1977 Survey				1978 Survey			
WESTERN CANADA	Oil[1/] Content	Erucic Acid Content	Protein Content	No. of Samples	Oil[1/] Content	Erucic Acid Content	Protein[2/] Content	No. of Samples
No. 1 CRS	41.9	1.6	36.1	387	41.3	1.4	36.8	432
No. 2 CRS	41.9	1.5	38.2	54	41.1	0.9	38.8	51
No. 3 CRS	42.9	1.0	36.9	1	40.1	1.4	40.7	7
All Grades	41.9	1.6	36.4	443	41.3	1.3	37.1	490
ALL GRADES BY PROVINCE								
Manitoba	42.1	1.7	37.3	79	41.5	0.6	37.6	90
Saskatchewan	42.5	1.0	36.7	173	41.9	0.8	37.5	204
Alberta	41.4	2.1	35.7	191	40.5	2.2	36.4	196

1/ Oil content of seed is reported on an 8.5% moisture basis.

2/ Protein content is reported on the oil-free meal and an 8.5% moisture basis.

SOURCE: Canadian Grain Commission, Crop Bulletins Nos. 137 and 141.

Table 14

SUMMERFALLOW AND STUBBLE CULTIVATION OF RAPESEED

	Summer-fallow	Stubble	Total
Seeded Area		- hectares -	
1974	949 413	305 139	1 254 552
1975	1 282 881	437 070	1 719 951
1976	700 526	153 379	853 905
1977	978 146	438 284	1 425 430
1978	1 809 389	922 298	2 731 687
Distribution		- per cent -	
1974	76	24	100
1975	75	25	100
1976	78	22	100
1977	69	31	100
1978	66	34	100
Average Yield Per Seeded Hectare		- tonnes per hectare -	
1974	0.964	0.751	0.914
1975	1.065	0.824	1.003
1976	1.244	0.875	1.166
1977	1.451	1.171	1.368
1978	1.306	1.1 8	1.250
Production		- tonnes -	
1974	913 998	229 066	1 143 064
1975	1 363 059	360 609	1 723 668
1976	691 735	133 811	825 546
1977	1 422 027	512 565	1 934 592
1978	2 363 240	1 050 077	3 413 317

SOURCE: Statistics Canada, Catalogue No. 22-002.

Table 15

CANADIAN RAPESEED PRICES [1/]

(Crop Year)

MONTH	1973/74	1974/75	1975/76	1976/77	1977/78
	.....$ per tonne.....				
August	286.60	362.00	293.65	232.37	264.11
September	236.55	375.44	262.35	246.03	277.56
October	217.81	421.30	235.01	226.19	285.50
November	212.74	397.71	218.26	255.73	270.95
December	250.00	358.03	194.45	242.07	270.72
January	288.80	322.75	199.30	254.85	281.31
February	311.29	281.75	206.35	347.44	281.31
March	298.94	273.37	205.25	313.94	292.33
April	268.52	283.51	201.06	365.08	347.08 [2/]
May	309.53	250.66	211.20	369.05	344.19
June	325.84	240.30	238.32	334.88	323.90
July	350.97	259.04	255.95	279.98	287.16
Yearly Average	279.54	318.79	226.63	288.80	295.90

[1/] Winnipeg Grain Exchange No. 1 Canadian Rapeseed, basis in-store Thunder Bay, $/tonne

[2/] As of April 1, 1978, basis in-store Vancouver, $/tonne

SOURCE: Statistics Canada, Catalogue Nos. 22-006 and 22-007.

CHAPTER 5

THE CANADIAN SOYBEAN SITUATION

Supply and Disposition

Canadian production of soybeans in 1978 was 475 134 tonnes versus 527 361 in 1977. Imports of beans rose slightly to 324,369 tonnes. For 1978, Canadian self-sufficiency in soybeans was approximately 60 per cent versus 62 per cent in 1977. This does not take into account the soybean equivalent of imported soybean oil and meal.

Exports of Soybeans

Soybeans exported in 1978 totalled 84 152 tonnes and were destined mainly for food use. This volume was a sharp increase over previous years.

Exports of Soybean Products

Oil exports were minimal at 1 406 tonnes. Meal exports, mainly to the United Kingdom, were 48 308 tonnes valued at $12 436 000.

Table 16

CANADIAN SUPPLY AND DISPOSITION OF SOYBEANS, SOYBEAN OIL AND SOYBEAN MEAL

(Crop Year)

SOYBEANS	1973/74	1974/75	1975/76	1976/77	1977/78
			- Tonnes -		
Production	396 527	300 457	366 808	250 384	527 361
Imports	340 354	344 273	371 026	391 608	262 835
Exports	28 875	9 498	22 289	24 820	64 173
Domestic Crushings	642 309	635 096	722 975	684 995	728 400
SOYBEAN OIL					
Imports	33 395	19 557	30 810	26 704	28 100
Exports	4 942	5 587	1 043	--	1 400
Domestic Production	109 169	108 344	122 694	115 616	125 600
SOYBEAN MEAL					
Imports	232 974	271 149	343 814	339 244	376 300
Exports	94 087	83 527	69 335	51 333	45 600
Domestic Production	503 368	499 183	569 467	540 689	575 400

SOURCE: Statistics Canada, Catalogue Nos. 22-006, 22-007 and unpublished data.

Table 17

CANADIAN IMPORTS OF SOYBEAN AND SOYBEAN OIL

Soybeans

- Tonnes -

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Germany, West	2	1	--	--	--
Hong Kong	1/	3	17	6	17
Japan	2	4	--	8	--
People's Republic of China	20	13	--	9	57
Singapore	--	--	--	4	2
Sweden	--	--	--	1/	--
United Kingdom	--	--	--	8	--
United States	390 756	385 444	397 560	317 935	324 369
TOTAL	380 781	385 465	397 577	317 970	324 445
TOTAL VALUE ($'000)	90 505	86 210	81 136	98 953	91 245

Soybean Oil

- Tonnes -

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
France	1/	1	--	--	--
United States	33 614	20 881	31 205	28 138	28 069
TOTAL	33 614	20 882	31 205	28 138	28 069
TOTAL VALUE ($'000)	24 829	14 394	14 223	17 216	19 070

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 18

IMPORTS OF SOYBEAN OIL BY PROVINCE

	1974		1975		1976		1977		1978	
	Tonnes	'000 of $	Tonnes	'000 of $	Tonnes	'000 of $	Tonnes	'000 of $	Tonnes	'000 of $
Nova Scotia	--	--	1	1/	10	6	--	--	--	--
New Brunswick	1 366	1 033	1 614	1 267	1 036	545	1 199	791	1 773	1 351
Quebec	5 897	3 871	1 490	822	2 056	788	436	282	936	752
Ontario	16 913	13 143	11 681	8 196	17 767	8 396	16 367	10 321	14 796	10 156
Manitoba	4 458	3 184	2 752	1 572	4 646	1 865	4 160	2 191	2 563	1 585
Saskatchewan	95	73	250	155	225	100	490	264	157	104
Alberta	970	599	343	236	1 931	734	3 246	1 896	5 489	3 526
British Columbia	3 912	2 922	2 747	2 142	3 532	1 783	2 238	1 468	2 355	1 596
TOTAL	33 613	24 825	20 881	14 394	31 205	14 222	28 137	17 216	28 069	19 070

1/ Less than $1,000.

SOURCE: Statistics Canada, Unpublished Data.

Table 19

IMPORTS OF SOYBEAN MEAL BY PROVINCE

	1974		1975		1976		1977		1978	
	Tonnes	'000 of $	Tonnes	'000 of $	Tonnes	'000 of $	Tonnes	'000 of $	Tonnes	'000 of $
Newfoundland	--	--	129	18	--	--	--	--	--	--
Nova Scotia	133	29	3 288	521	19	3	2 913	679	130	32
New Brunswick	72	13	129	18	5 569	1 369	7 797	2 418	9 729	2 998
Quebec	65 673	10 399	91 146	20 062	118 447	25 368	99 456	26 329	103 390	28 260
Ontario	57 704	10 897	49 312	8 574	57 881	12 891	84 149	21 713	114 857	28 222
Manitoba	77 965	14 627	63 070	9 975	69 789	12 250	68 543	16 507	86 357	19 517
Saskatchewan	19 672	3 975	17 808	3 134	16 740	3 227	20 127	5 235	20 806	5 022
Alberta	27 025	5 108	37 904	6 273	42 521	7 120	38 634	9 564	46 306	11 501
British Columbia	29 192	5 865	31 554	5 622	37 896	7 810	29 681	7 861	31 083	7 501
TOTAL	277 438	50 853	294 343	54 209	348 865	70 042	351 302	90 310	412 656	103 093

SOURCE: Statistics Canada, Unpublished Data.

Table 20

CANADIAN EXPORTS OF SOYBEANS

(Tonnes)

DESTINATION	1974	1975	1976	1977	1978
Bangladesh	-	-	-	-	82
Belgium-Luxembourg	2 000	-	-	-	-
Denmark	-	-	-	-	18
France	63	490	73	75	8 749
Germany, West	561	225	10	-	-
Hong Kong	957	2 192	5 111	6 502	14 291
Hungary	-	-	-	3	-
Jamaica	3	4	-	-	-
Japan	3 830	3 041	6 825	10 976	34 940
Malaysia	-	-	209	227	1 744
Netherlands	18	-	-	3,941	5 463
Philippines	-	-	125	-	-
Romania	-	-	-	1 008	-
Singapore	-	1 020	9 667	2 950	13 027
Spain	-	213	-	8 885	-
Sweden	1 356	-	-	-	-
Switzerland	91	-	-	-	-
Taiwan	-	-	-	397	-
United Kingdom	4 162	30	80	246	-
United States	22	46	351	94	30
Yugoslavia	-	160	-	-	-
Other Countries 1/	-	-	2 199	2 533	5 808
TOTAL	13 066	8 710	24 653	37 837	84 152
TOTAL VALUE ($'000)	3 451	2 812	6 100	11 047	24 375

1/ To protect confidentiality under the Statistics Act

SOURCE: Statistics Canada, Catalogue No. 65-004

Table 21

CANADIAN EXPORTS OF SOYBEAN OIL AND MEAL

(Tonnes)

SOYBEAN OIL

DESTINATION	1974	1975	1976	1977	1978
Bahamas	--	--	--	--	--
Germany, West	--	14	--	--	--
Jamaica	--	4	--	--	--
Leeward-Windward Islands	1	1	--	--	--
Netherlands	--	--	--	--	1 406
United Kingdom	7 778	1 965	--	--	--
United States	368	92	--	23	--
TOTAL	8 148	2 076	--	23	1 406
TOTAL VALUE ($'000)	5 663	1 391	--	12	742

SOYBEAN MEAL

DESTINATION	1974	1975	1976	1977	1978
Belgium-Luxembourg	--	--	--	--	--
Denmark	--	--	--	6 748	2 956
Germany, West	--	--	28	3 790	--
Guyana	--	--	3	--	--
Hong Kong	--	--	--	--	800
Ireland	3 789	--	2 039	--	--
Netherlands	--	--	--	--	1 001
Trinidad-Tobago	--	--	--	--	--
United Kingdom	101 984	57 269	59 653	34 333	41 929
United States	9 420	1 723	987	718	1 622
TOTAL	115 195	58 993	62 711	45 589	48 308
TOTAL VALUE ($'000)	17 547	9 435	11 272	10 747	12 436

SOURCE: Statistics Canada, Catalogue No. 65-004

Table 22

CANADIAN SOYBEAN PRICES [1/]

(Crop Year)

MONTH	1973/74	1974/75	1975/76	1976/77	1977/78
			$ per tonne		
August	382.13	263.17	219.22	211.96	207.49
September	222.30	267.03	200.48	227.76	185.75
October	204.59	298.17	175.40	211.09	187.44
November	203.33	265.93	159.83	221.38	211.87
December	214.53	249.21	154.60	243.97	215.77
January	221.28	217.06	160.34	248.43	209.99
February	236.67	186.01	162.36	260.69	205.98
March	224.22	185.28	160.98	304.65	243.13
April	199.61	193.77	160.84	344.51	259.88
May	190.01	177.10	176.83	347.45	273.40
June	185.46	179.40	214.03	298.82	266.61
July	235.94	199.47	224.68	224.82	256.72
Yearly Average	226.52	223.49	180.82	262.25	226.98

[1/] Buying prices, carlots, fob Chatham, No.2 and better.

SOURCE: Statistics Canada, Catalogue No. 22-006.

CHAPTER 6

THE CANADIAN FLAXSEED SITUATION

Flaxseed Production

Production in 1978 fell slightly to 558 829 tonnes versus 609 632 in 1977; average yield rose but the seeded area declined.

Exports of Flaxseed

The volume exported in 1978 was 409 417 tonnes, up 24 per cent from 1977. The value of these exports increased by about 10 per cent. Japan and Europe were the principal markets. A sizeable proportion of the flaxseed imported by Western Europe is transhipped to Eastern European countries.

Exports of Linseed Oil And Meal

Exports of linseed oil increased to 8 099 tonnes in 1978, mainly to Europe. Linseed meal exports were 5 583, valued at $1 087 000.

Table 23

CANADIAN SUPPLY AND DISPOSITION OF FLAXSEED, LINSEED OIL AND LINSEED MEAL

(Crop Year)

	1973/74	1974/75	1975/76	1976/77	1977/78
			- tonnes -		
FLAXSEED					
Stocks, Starting[1]	194 904	200 950	218 578	380 640	280 400
Production	492 786	350 538	444 523	276 875	402 400
Imports	431	406	--	[3]	[3]
Exports	393 797	267 196	195 107	332 708	337 500
Domestic Crushing	19 355	x[2]	x[2]	x[2]	x[2]
LINSEED OIL					
Exports	2 230	2 184	5 817	4 525	4 597
Domestic Production	6 601	x[2]	x[2]	x[2]	x[2]
LINSEED MEAL					
Exports	24	196	636	3 679	2 015
Domestic Production	11 932	x[2]	x[2]	x[2]	x[2]

[1] Total stocks in all positions.

[2] Confidential - to meet secrecy requirements of the Statistics Act.

[3] Less than one tonne.

Table 24

CANADIAN EXPORTS OF FLAXSEED

(Tonnes)

DESTINATION	1974	1975	1976	1977	1978
Australia	5 633	--	--	--	--
Austria	--	34	36	--	--
Belgium-Luxembourg	7 477	2 951	1 763	11 658	20 209
Czechoslovakia	25 004	17 717	3 151	5 836	--
Denmark	--	--	--	614	4 849
Finland	--	--	--	6	--
France	5 202	1 848	508	6 722	17 427
Germany, East	3 860	--	--	--	--
Germany, West	110 680	77 619	81 224	117 479	140 737
Greece	2 184	1 050	1 500	--	--
Italy	--	--	--	--	--
Japan	77 027	65 330	90 647	78 984	100 863
Korea, North	--	--	--	269	--
Korea, South	--	--	1 750	3 373	3 934
Netherlands	41 289	31 516	11 078	25 799	14 800
New Zealand	2 199	--	--	--	--
Panama	--	2 117	--	102	--
Poland	23 263	18 926	--	--	--
Spain	6 500	6 580	8 547	11 315	4 329
Sweden	--	72	54	2 279	206
Switzerland	1 237	108	1 468	9 020	1 118
Taiwan	--	--	--	911	6 217
Trinidad-Tobago	--	2	--	--	--
United Kingdom	31 337	15 573	4 672	13 892	11 724
United States	12 659	3 493	40 198	41 107	23 427
TOTAL	351 031	244 942	246 602	329 366	409 417
TOTAL VALUE ($'000)	148 631	83 815	66 278	93 538	102 424

SOURCE: Statistics Canada, Catalogue No. 65-004.

Table 25

CANADIAN IMPORTS OF FLAXSEED

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
United Kingdom	--	--	--	18	--
United States	451	337	1/	51	26
TOTAL	451	337	1/	69	26
TOTAL VALUE ($'000)	333	171	--	45	10

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 26

CANADIAN EXPORTS OF LINSEED OIL

(Tonnes)

DESTINATION	1974	1975	1976	1977	1978
Belgium-Luxembourg	--	1 526	1 965	1 717	1 811
Bermuda	--	1	1	--	--
Ecuador	--	--	--	--	--
French West Indies	--	--	1/	--	--
Jamaica	--	1/	--	--	--
Leeward-Windward Is.	--	--	--	1	--
Liberia	2	2	--	--	--
Netherlands	--	1 590	2 848	1 724	1 524
Nigeria	--	--	--	--	--
United Kingdom	581	398	250	2 241	2 944
United States	--	36	34	27	29
Venezuela	8	7	8	7	20
TOTAL	592	3 562	5 108	5 717	8 099
TOTAL VALUE ($'000)	655	3 237	2 758	2 786	3 390

1/ Less than one metric ton

SOURCE: Statistics Canada, Catalogue No. 65-004.

Table 27

CANADIAN EXPORTS OF LINSEED CAKE AND MEAL

(Tonnes)

DESTINATION	1974	1975	1976	1977	1978
Belgium-Luxembourg	--	--	481	--	--
Germany, West	--	--	3 150	--	--
Leeward-Windward Is.	--	--	--	4	--
Netherlands	--	--	--	3 201	3 187
Sweden	--	--	22	--	--
Trinidad-Tobago	49	114	60	91	26
United Kingdom	--	--	--	--	--
United States	64	80	159	1 430	2 370
TOTAL	114	194	3 875	4 726	5 583
TOTAL VALUE ($'000)	24	37	835	741	1 087

SOURCE: Statistics Canada, Catalogue No. 65-004.

Table 28

QUALITY DATA FOR WESTERN CANADIAN FLAXSEED, SURVEY SAMPLES OF 1976, 1977 AND 1978 CROPS

	Oil Content 1/			Iodine Value			Protein Content 2/			No. of Samples		
WESTERN CANADA	1976	1977	1978	1976	1977	1978	1976	1977	1978	1976	1977	1978
No. 1 CW	43.0	44.2	43.7	192	195	190	41.1	40.6	41.2	289	215	237
No. 2 CW	43.8	44.4	43.1	193	199	191	43.3	39.7	40.1	4	40	16
No. 3 CW	--	44.7	41.6	--	201	188	--	40.1	40.8	--	27	2
No. 4 CW	--	46.2	--	--	199	--	--	40.2	--	--	5	--
All Grades	43.0	44.3	43.6	192	196	190	41.1	40.4	41.1	293	289	255
ALL GRADES												
Manitoba	43.0	44.5	43.5	192	197	190	41.8	40.1	40.8	161	156	132
Saskatchewan	42.9	44.2	43.8	192	196	190	39.7	40.4	41.3	94	118	104
Alberta	43.2	43.0	43.4	194	190	192	41.7	44.2	42.7	38	15	19

1/ Oil Content of seed is reported on moisture-free basis.

2/ Protein Content is reported on oil-free meal and moisture-free basis.

SOURCE: Canadian Grain Commission, Crop Bulletin Nos. 133 and 137.

Table 29

SUMMERFALLOW AND STUBBLE CULTIVATION OF FLAXSEED

Seeded Area	Summer-fallow	Stubble	Total
		- hectares -	
1974	295 831	290 975	586 806
1975	266 289	300 283	566 672
1976	124 646	199 110	323 756
1977	241 198	333 468	574 666
1978	180 089	337 920	518 009
Distribution		- per cent -	
1974	50	50	100
1975	47	53	100
1976	38	62	100
1977	42	58	100
1978	35	65	100
Average Yield		- kg. per hectare -	
1974	660	534	597
1975	918	666	786
1976	1 018	754	855
1977	1 201	962	1 063
1978	1 232	1 000	1 082
Production		- tonnes -	
1974	195 590	154 948	350 538
1975	243 852	200 670	444 523
1976	127 006	149 868	276 874
1977	289 575	320 056	609 632
1978	220 992	337 837	558 829

SOURCE: Statistics Canada, Catalogue No. 22-002.

Table 30

CANADIAN FLAXSEED PRICES [1/]

(Crop Year)

M O N T H	1973/74	1974/75	1975/76	1976/77	1977/78
	.....$ per tonne.....				
August	345.99	432.99	336.35	281.18	213.77
September	348.70	461.39	311.00	282.56	218.30
October	353.82	479.95	284.34	274.94	220.17
November	401.01	430.78	258.20	265.83	218.34
December	417.55	420.69	247.48	262.38	209.83
January	442.00	363.17	258.65	273.85	205.30
February	459.42	319.12	257.17	281.83	209.44
March	435.80	308.69	254.32	291.52	230.74
April	380.84	339.10	249.59	333.10	249.53
May	390.43	325.08	258.99	302.69	258.84
June	385.65	307.02	280.84	219.62	249.81
July	431.18	320.95	292.40	242.61	231.02
Yearly Average	399.39	375.67	274.15	276.31	225.97

[1/] Winnipeg Grain Exchange No. 1 C.W. Flaxseed Basis Thunder Bay.

SOURCE: Statistics Canada, Catalogue Nos. 22-006 - 22-007.

CHAPTER 7

THE CANADIAN SUNFLOWERSEED SITUATION

Production

Manitoba continues to account for 95% of total sunflowerseed production in Canada. Output in 1978 rose to 113 853 tonnes, of which Manitoba produced 108 863 tonnes.

Canadian Exports of Sunflowerseed

Exports of unprocessed sunflowerseed increased sharply to 74 119 tonnes, compared to 26 103 tonnes in 1977. West Germany, the Netherlands and the United States were the principal markets. The total value of sunflowerseed exported was $21 675 000 in 1978.

Table 31

CANADIAN SUNFLOWERSEED: ACREAGE, YIELD AND PRODUCTION

(Crop Year)

	1974/75	1975/76	1976/77	1977/78	1978/79
			(Thousands of Acres)		
Manitoba	30.0	62.0	50.0	165.0	203.0
Saskatchewan	--	--	--	--	11.0
Alberta	--	--	--	--	--
Canada, Total	30.0	62.0	50.0	165.0	214.0
			(Yield Per Acre, Pounds)		
Manitoba	867	1 065	1 060	1 061	1 182
Saskatchewan	--	--	--	--	1 000
Alberta	--	--	--	--	--
Canada	867	1 065	1 060	1 061	1 173
			(Production - Tonnes)		
Manitoba	8 255	29 945	24 047	79 379	108 863
Saskatchewan	--	--	--	--	4 990
Alberta	--	--	--	--	--
Canada, Total	8 255	29 937	24 047	79 379	113 853

SOURCE: Statistics Canada, Catalogue No. 22-002.

Table 32

CANADIAN EXPORTS OF SUNFLOWERSEED

(Tonnes)

DESTINATION	1974	1975	1976	1977	1978
Algeria	--	--	--	1 050	--
Australia	--	--	17	15	37
Bangladesh	2	--	2	--	--
Czechoslovakia	6 877	--	1 604	6 998	--
Denmark	--	--	18	--	14
Germany, West	7 244	3 825	3 590	344	43 607
Mexico	--	--	--	434	--
Netherlands	5 703	--	3 001	14 284	17 999
New Zealand	1/	2	1/	5	2
Portugal	36	2 701	--	--	--
Spain	--	526	--	--	40
Sweden	1/	2	4	5	72
United Kingdom	31	34	25	19	340
United States	1 250	874	1 238	2 949	3 913
TOTAL	21 169	7 965	9 501	26 103	74 119
TOTAL VALUE ($'000)	7 334	2 623	3 258	6 225	21 675

1/ Less than one tonne

SOURCE: Statistics Canada, Catalogue No. 65-004.

Table 33

CANADIAN IMPORTS OF SUNFLOWERSEED OIL

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Belgium-Luxembourg	--	--	--	--	7
Austria	3	5	--	--	--
France	2	1	--	--	--
United States	178	160	271	59	164
U.S.S.R.	1	4	--	--	--
TOTAL	186	170	271	59	171
TOTAL VALUE ($'000)	181	158	147	43	136

SOURCE: Statistics Canada, Catalogue No. 65-007.

CHAPTER 8

THE CANADIAN MUSTARDSEED SITUATION

Canadian Mustardseed Production and Trade

Canada is a leading producer and exporter of mustardseed. Production in 1978 increased to 103 448 tonnes, from 97 936 hectares.

Main export destinations were Western Europe, Japan and the United States. A total of 73 339 tonnes of mustardseed was exported, with a value of $25 208 000.

Imports of Ground Mustard

The United Kingdom supplied approximately 75 per cent of the ground mustard imported into Canada in 1978. This type of dry mustard serves a particular market; the bulk of the Canadian mustard is consumed in a liquid rather than dry form.

Table 34

CANADIAN MUSTARDSEED: ACREAGE, YIELD AND PRODUCTION

(Crop Year)

	1974/75	1975/76	1976/77	1977/78	1978/79
			- hectares -		
Manitoba	16 188	9 308	7 285	16 188	25 091
Saskatchewan	80 939	30 757	19 020	40 469	52 601
Alberta	44 516	25 911	8 903	16 997	20 234
Canada - Total	141 643	65 965	35 208	73 654	97 936
			- yield - kilograms/hectare -		
Manitoba	842	708	899	1 011	1 159
Saskatchewan	842	739	1 004	1 179	959
Alberta	817	808	1 093	910	1 191
Canada - Total	835	762	1 004	1 081	1 056
			- production - tonnes -		
Manitoba	13 608	6 578	6 531	16 329	29 038
Saskatchewan	68 039	22 679	19 051	47 627	50 363
Alberta	36 287	20 865	9 707	15 422	24 047
Canada - Total	117 935	50 121	35 289	79 378	103 448

SOURCE: Statistics Canada, Catalogue No. 22-002.

Table 35

CANADIAN EXPORTS OF MUSTARDSEED

(Tonnes)

DESTINATION	1974	1975	1976	1977	1978
Australia	65	--	--	22	6
Belgium-Luxembourg	6 292	114	574	435	--
Costa Rica	4	15	17	--	--
Czechoslovakia	--	108	35	--	308
France	129	290	181	--	--
Germany, West	2 165	3 483	2 613	2 157	7 622
Guatemala	1	--	--	--	--
India	--	--	--	--	2 958
Japan	7 565	9 058	7 517	7 024	6 701
Mexico	281	272	108	196	429
Netherlands	18 048	11 057	9 114	14 138	25 435
Philippines	--	4	4	7	9
South Africa	--	--	--	21	--
Spain	--	17	40	--	--
Sweden	54	54	54	--	34
Switzerland	94	430	--	1 108	--
United Kingdom	637	1 253	85	18	171
United States	33 460	31 659	38 526	31 312	29 378
Venezuela	22	24	--	--	32
TOTAL	68 925	57 841	58 871	56 438	73 339
TOTAL VALUE ($'000)	21 171	22 939	20 946	19 660	25 208

SOURCE: Statistics Canada, Catalogue No. 65-004.

Table 36

CANADIAN IMPORTS OF GROUND MUSTARD

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
France	--	4	--	9	20
Germany, West	1/	2	--	--	--
Hong Kong	1/	1/	--	1/	--
India	--	1/	--	--	--
Japan	1/	1/	--	--	--
People's Republic of China	3	--	--	--	--
Taiwan	--	2	--	--	--
United Kingdom	306	317	169	241	220
United States	56	65	99	98	43
TOTAL	368	393	269	349	284
TOTAL VALUE ($'000)	424	522	358	548	625

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

CHAPTER 9

DEODORIZED FATS AND OILS

Production of deodorized fats and oils in 1978 increased only slightly over 1977. Shortening oil increased while production of margarine oil and salad oil declined. Vegetable oils in 1978 accounted for 89 per cent of total deodorized fats and oils produced.

Imports of vegetable oils and fats (NES) increased by 42 per cent to 3 235 tonnes in 1978, mainly from the United States.

Imports of cocoa butter, coconut oil, cottonseed oil, olive oil, palm oil, and peanut oil were down slightly from 1977 levels, in part reflecting a depreciated Canadian dollar and short supplies. Imports of corn oil and palm kernel oil increased slightly.

Canadian exports of vegetable oil and fats (NES) increased to 3 512 tonnes versus 1 413 tonnes in 1977.

Table 37

CANADIAN PRODUCTION OF DEODORIZED FATS AND OILS

(Tonnes)

Vegetable Oils	1977 Margarine Oil	1977 Shortening Oil	1977 Salad Oil	1977 Total	1978 Margarine Oil	1978 Shortening Oil	1978 Salad Oil	1978 Total
Coconut	X	X	X	18 447	X	X	X	15 871
Corn	X	X	X	21 263	X	X	X	24 872
Cottonseed	X	X	X	3 301	X	X	X	X
Palm	X	24 165	X	28 904	X	X	X	16 482
Palm Kernel	X	X	X	6 052	X	X	-	X
Peanut	X	X	X	6 567	4	X	X	5 940
Rapeseed	34 919	32 683	53 392	120 994	39 825	35 693	55 924	131 442
Soybean	53 336	42 634	20 334	116 304	53 808	47 126	X	116 712
Sunflowerseed	X	X	X	10 727	X	2 778	X	14 417
Other Vegetable	X	X	X	650	X	X	-	X
TOTAL VEGETABLE OILS	102 778	128 971	101 460	333 209	111 361	123 377	99 559	334 297
Marine Oils								
Herring	X	X	-	X	X	X	-	X
Seal	X	X	-	76	-	-	-	-
Whale	-	-	-	-	X	X	-	X
Other Marine	X	X	-	X	X	X	-	X
TOTAL MARINE OILS	-	-	-	76	X	X	-	X
Animal Fats								
Lard	X	X	-	X	X	X	-	X
Oleo, All Types	-	X	-	X	-	X	-	X
Tallow, Edible	X	X	-	X	X	X	-	X
TOTAL ANIMAL FATS	X	X	-	X	X	X	-	X
TOTAL ALL FATS & OILS	104 971	163 375	101 460	369 806	113 824	161 496	99 559	374 879

FOOTNOTES TO

CANADIAN PRODUCTION OF DEODORIZED FATS AND OILS

X Confidential to meet secrecy requirements of the Statistics Act

SOURCE: Statistics Canada, Catalogue No. 32-006.

Table 38

CANADIAN IMPORTS OF VEGETABLE OILS AND FATS (NES)

- Tonnes -

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Austria	1	10	1	2	--
Belgium-Luxembourg	18	--	--	--	--
Brazil	18	14	212	15	60
Denmark	140	146	23	23	4
France	2	1	13	2	1
Germany, West	72	6	6	9	27
Greece	185	545	1/	--	--
Hong Kong	30	31	29	47	66
India	1/	1/	6	1/	--
Japan	59	33	47	98	74
Netherlands	--	64	2	1	20
New Zealand	--	--	10	--	--
Paraguay	--	--	--	--	14
People's Republic of China	5	7	14	19	15
Singapore	1/	--	2	--	--
Switzerland	1	3	3	6	2
Syria	1	--	--	--	--

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
United Kingdom	1 994	572	331	512	258
United States	3 441	1 521	2 452	1 528	2 690
Yugoslavia	--	6	1/	8	22
TOTAL	5 973	2 965	3 156	2 270	3 235
TOTAL VALUE ($'000)	7 447	3 129	3 069	3 111	3 823

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 39

CANADIAN IMPORTS OF COCOA BUTTER

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Australia	1 019	--	--	--	--
Belgium-Luxembourg	--	--	--	--	35
Brazil	1 677	426	875	416	213
Cuba	--	60	92	75	72
Dominican Republic	33	--	--	--	--
Ecuador	246	--	--	180	--
Germany, West	283	37	--	170	262
Ghana	1 016	--	--	--	--
Guinea	25	--	--	--	--
Ivory Coast	977	236	299	178	231
Jamaica	44	--	--	10	10
Leeward-Windward Is.	30	--	--	--	--
Mexico	--	184	--	--	--
Netherlands	98	1 521	1 612	1 453	1 677
Nigeria	3 173	--	--	--	100
Singapore	--	--	26	--	--
Trinidad-Tobago	10	--	--	--	--
United Kingdom	211	1 283	1 409	1 714	717
United States	4 241	613	693	636	245
TOTAL	13 175	4 362	5 008	4 835	3 562
TOTAL VALUE ($'000)	20 048	14 378	16 714	24 618	18 841

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 40

CANADIAN IMPORTS OF COCONUT OIL

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Australia	993	2 218	1/	1/	359
Fiji	1 721	1/	--	--	--
Finland	--	68	--	--	--
Germany, West	1	1	--	--	--
Indonesia	--	--	173	--	--
Jamaica	--	--	2	3	2
Malaysia	7 907	3 902	1 730	4 664	1 934
Philippines	67	7 137	18 623	18 827	15 607
Puerto Rico	18	--	--	--	--
Singapore	5	--	--	--	--
Sri Lanka	8 096	10 540	8 190	156	2 785
United Kingdom	719	346	174	1	3
United States	2 423	1 600	752	567	1 623
TOTAL	21 956	25 816	29 647	24 218	22 313
TOTAL VALUE ($'000)	20 934	11 995	10 847	14 447	15 126

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 41

CANADIAN IMPORTS OF CORN OIL

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
United Kingdom	1 605	--	--	--	--
United States	8 752	10 172	16 418	15 482	19 707
TOTAL	10 358	10 172	16 418	15 482	19 707
TOTAL VALUE ($'000)	9 010	7 311	8 705	10 612	18 154

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 42

CANADIAN IMPORTS OF COTTONSEED OIL

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
United States	11 333	11 289	5 200	5 497	4 723
TOTAL	11 333	11 289	5 200	5 497	4 723
TOTAL VALUE ($'000)	8 214	7 647	2 863	3 376	3 162

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 43

CANADIAN IMPORTS OF OLIVE OIL

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Chile	--	--	25	--	--
France	38	30	28	15	35
Greece	105	417	162	107	218
Italy	773	611	525	737	920
Portugal	241	150	106	155	162
Spain	1 170	709	2 132	3 750	1 266
Sweden	8	--	--	--	--
Switzerland	--	17	--	--	--
Tunisia	--	22	--	--	--
Turkey	1	1	--	14	--
United States	66	29	2 117	62	213
TOTAL	2 408	1 986	5 096	4 840	2 814
TOTAL VALUE ($'000)	4 597	4 161	4 646	3 406	4 923

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 44

CANADIAN IMPORTS OF PALM OIL

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Brazil	--	--	--	--	10
Germany, West	1	--	--	--	--
Ghana	--	--	--	3	--
India	--	--	1/	--	--
Indonesia	2 011	13 085	20 592	15 249	16 254
Ivory Coast	--	1 385	--	--	--
Malaysia	10 503	23 675	31 800	13 972	5 840
Netherlands	--	--	--	8	508
Philippines	--	--	250	--	--
Singapore	1 020	509	1	--	--
United Kingdom	3	1/	2	6	20
United States	2 658	2 627	2 354	1 941	573
TOTAL	16 199	41 283	55 001	31 179	23 205
TOTAL VALUE ($'000)	10 671	19 547	19 285	17 142	14 763

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 45

CANADIAN IMPORTS OF PALM KERNEL OIL

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Denmark	--	--	--	7	16
Hong Kong	200	--	--	--	--
Indonesia	--	473	2 223	3 905	1 605
Malaysia	2 970	3 966	4 685	2 941	4 552
Netherlands	78	13	10	--	--
Nigeria	--	--	--	--	--
Singapore	--	--	44	--	250
United States	1 126	640	3 388	339	845
TOTAL	4 376	5 092	10 351	7 192	7 252
TOTAL VALUE ($'000)	4 459	2 565	3 174	4 236	5 387

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 46

CANADIAN IMPORTS OF PEANUT OIL

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Brazil	--	2 444	3 602	604	--
France	--	18	--	--	9
Hong Kong	190	97	52	40	52
Japan	--	5	--	--	--
Nicaragua	--	--	693	--	--
Nigeria	--	--	--	--	--
Senegal	--	507	--	--	--
United Kingdom	519	680	1/	1/	1/
United States	4 808	3 095	2 381	6 201	6 393
TOTAL	5 519	6 846	6 734	6 845	6 460
TOTAL VALUE ($'000)	5 031	5 950	4 252	5 582	6 964

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 47

CANADIAN EXPORTS OF OTHER VEGETABLE OILS AND FATS (NES)

(Tonnes)

DESTINATION	1974	1975	1976	1977	1978
Australia	--	1/	--	1/	1
Bahamas	--	--	4	2	--
Barbados	43	10	13	46	53
Bermuda	2	--	--	--	--
Colombia	--	--	443	--	--
Cuba	1	183	4	3	3
Cyprus	--	1/	--	--	--
Emirates, UA	--	--	13	--	--
Germany, West	1	1/	2 205	3	--
Guyana	154	6	2	4	383
Haiti	--	111	--	--	--
India	--	--	5	--	--
Ivory Coast	--	--	--	1	--
Jamaica	1	1	--	--	--
Jordan	--	--	5	--	--
Kuwait	11	--	--	--	--
Leeward-Windward Is.	9	63	45	100	41
Netherlands	--	--	--	57	41
Peru	--	--	--	66	--
Saudi Arabia	--	99	3 156	32	15
St. Pierre-Miquelon	1/	--	--	1	--
Sweden	--	--	17	18	19
Trinidad-Tobago	159	29	120	159	2 059
United Kingdom	--	71	125	66	47
United States	375	364	811	855	703
TOTAL	763	944	6 974	1 413	3 512
TOTAL VALUE ($'000)	513	512	1 914	918	1 915

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-004.

CHAPTER 10

SPECIFIED FATS AND OILS

Statistics Canada reports that the uptrend in margarine production ceased in 1978, with some recovery in butter production. Shortening production showed an increase in 1978 over 1977. There was a sharp increase in tallow production.

Imports of lard and shortening were down slightly in 1978, although the value was higher. Exports of margarine, shortening and lard increased to 1 559 tonnes compared to 634 tonnes in 1977.

Exports of tallow and animal oils and fats (NES) increased in 1978 to 143 115 tonnes, valued at $68 256 000. Principal export destinations were Japan, South Korea, the Netherlands, and the United Kingdom.

Production of specified dairy products, as reported in the Dairy Review, showed declines for milk and butter, and increases for cheese and concentrated milk products. The butter data is thought to not include whey butter.

Table 48

CANADIAN PRODUCTION OF SPECIFIED FATS AND OILS PRODUCTS

(Thousands of Tonnes)

	1974	1975	1976	1977	1978
Margarine [1]	108	119	126	136	111
Butter [2]	108	131	117	94	132
Shortening					
Packaged [3]	17	23	90	90	94
Bulk [4]	154	148	81	81	85
Refined Oils					
Salad [5]	77	81	95	101	99
Lard [6]	50	43	42	40	43
Tallow [7]					
Edible	16	17	16	13	34
Inedible	182	182	199	180	236

[1] Includes retail and commercial packages. Commercial sales (21-450 pound) packages account for about 5% of total output.

[2] Includes factory and whey butter.

[3] Retail packages up to 20 pounds only.

[4] Covers commercial (21-450 pound) packages, bulk and other than packaged retail sales of manufacturers of shortening and deodorized shortening oil. Includes baking and frying fats and oils.

[5] Covers packaged and bulk manufacturers' sales.

[6] Rendered lard includes shipments of processed lard in retail and commercial packages and bulk sales.

[7] Shipments for year.

SOURCE: Statistics Canada, Catalogue Nos. 32-002 and 32-006.

Table 49

CANADIAN IMPORTS OF LARD AND SHORTENING

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Australia	9	--	--	--	--
France	--	--	--	3	1
Germany, West	9	1	4	3	9
Greece	--	--	15	--	23
India	--	--	1	--	--
Netherlands	--	--	2	--	--
St. Pierre-Miquelon	--	--	22	--	--
Sweden	70	50	55	45	33
United Kingdom	--	--	1/	--	10
United States	29 576	27 814	35 451	31 880	31 241
TOTAL	29 665	27 865	35 559	31 931	31 317
TOTAL VALUE ($'000)	21 311	19 675	16 967	18 972	22 128

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 50

CANADIAN EXPORTS OF MARGARINE, SHORTENING AND LARD

(Tonnes)

DESTINATION	1974	1975	1976	1977	1978
Bahamas	--	1	--	--	--
Bahrain	--	--	17	--	6
Bermuda	22	14	16	15	27
Emirates, UA	--	--	48	64	41
Germany, West	--	1	--	2	1
Jamaica	30	22	35	4	--
Japan	18	--	--	--	3
Jordan	--	--	18	16	--
Kuwait	--	--	67	46	95
Lebanon	--	--	--	190	203
Leeward-Windward Is.	1/	3	--	19	45
Libya	--	--	7	--	--
Netherlands-Antilles	1	--	--	32	40
Puerto Rico	--	--	--	--	72
Qatar	--	--	15	11	12
Saudi Arabia	--	--	405	64	665
St. Pierre-Miquelon	44	42	25	41	37
Trinidad-Tobago	--	1/	--	1	--
United States	234	182	49	122	311
TOTAL	352	268	706	634	1 559
TOTAL VALUE ($'000)	290	248	543	770	1 914

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-004.

Table 51

CANADIAN IMPORTS OF VEGETABLE COOKING FATS AND PACKAGED SALAD OILS

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Denmark	2	--	--	--	--
France	17	12	--	1	1
Greece	18	15	--	12	18
Hong Kong	--	--	1/	1	--
Israel	1 000	--	1/	--	--
Sweden	18	14	5	1	4
United Kingdom	16	57	3	4	10
United States	386	594	135	404	127
TOTAL	1 461	692	144	423	163
TOTAL VALUE ($'000)	471	389	109	342	213

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 52

CANADIAN IMPORTS OF TALLOW, ANIMAL OILS, GREASES AND FATS (NES)

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Australia	3	11	5	--	12
Germany, West	37	44	47	41	51
Netherlands	--	--	1	7	14
New Zealand	--	--	10	--	--
United Kingdom	40	5	17	--	11
United States	7 110	6 563	2 654	2 900	7 418
TOTAL	7 198	6 734	2 889	2 948	7 506
TOTAL VALUE ($'000)	2 988	1 757	1 292	1 521	2 138

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 53

CANADIAN EXPORTS OF TALLOW, ANIMAL OILS AND FATS (NES)

- tonnes -

DESTINATION	1974	1975	1976	1977	1978
Bangladesh	--	--	--	99	--
Barbados	90	27	21	--	--
Belgium-Luxembourg	598	996	2 022	798	2 203
Bermuda	--	--	1	--	--
Brazil	97	--	--	--	6
Chile	--	--	--	249	--
Colombia	--	52	32	22	28
Cuba	13 638	13 587	10 702	5 600	3 026
Dominican Republic	18	--	--	--	--
France	1 002	5	10	2 362	3 682
Germany, West	--	300	3 857	2 112	898
Ghana	596	749	--	--	--
Guatemala	32	21	--	517	17
Guyana	--	136	--	--	--
Hong Kong	--	--	--	2	--
Iran	--	--	1 300	--	1 079
Ireland	--	300	--	--	--
Italy	--	548	1 413	--	--
Ivory Coast	--	--	--	496	1 178
Jamaica	238	299	474	338	--
Japan	15 376	10 400	18 058	25 111	23 719
Kenya	--	--	50	110	1 550
Korea, South	5 272	15 700	13 190	26 269	22 996
Leeward-Windward Is.	4	--	4	1	--
Malaysia	--	73	56	146	118
Mexico	16	25	20	44	11
Morocco	--	574	--	--	600
Netherlands	24 184	16 697	29 077	38 105	47 483
Netherlands-Antilles	3	--	--	--	--
Nigeria	--	924	1 319	--	--
Norway	16	71	--	--	--
Panama	--	--	4	--	5
People's Republic of China	11 112	5 589	2 033	8 630	4 065
Portugal	--	52	157	145	211
Puerto Rico	17	--	--	--	--
Senegal	997	708	--	--	--

DESTINATION	1974	1975	1976	1977	1978
Singapore	36	158	18	51	18
Spain	1 550	9 656	7 390	9 343	6 997
St. Pierre-Miquelon	1/	--	--	3	--
Switzerland	150	209	272	169	236
Taiwan	--	--	1 680	2 900	1 950
Trinidad-Tobago	326	294	503	486	504
United Kingdom	13 803	5 541	9 778	18 064	25 234
United States	10 885	11 044	9 651	4 456	4 889
U.S.S.R.	--	3 774	--	--	--
Venezuela	193	69	66	1 132	208
Zaire	--	747	--	--	200
Zambia	1 203	--	--	--	--
TOTAL	101 458	99 335	113 166	140 829	143 115
TOTAL VALUE ($'000)	41 253	32 218	38 589	54 856	68 256

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-004.

Table 54

PRODUCTION OF SPECIFIED DAIRY PRODUCTS

- Tonnes -

	Milk	Butter	Cheese[1/]	Concentrated Milk Products[2/]
1975	7 165 776	132 388	120 343	347 527
1976	7 172 330	116 996	124 599	315 198
1977	7 742 784	116 714	134 326	377 250
1978	7 614 800	105 989	139 700	383 660

1/ Includes cheddar and specialty cheese

2/ Includes whole milk products and milk by-products

SOURCE: Statistics Canada, Dairy Review 23-001.

Table 55

CANADIAN PRODUCTION OF SALAD DRESSINGS AND MAYONNAISE

(Tonnes)

PRODUCT	1974	1975	1976	1977	1978
Salad Dressings[1] and Mayonnaise[2]	41 504	38 379	35 942	44 550	48 792
TOTAL	41 504	38 379	35 942	44 550	48 792

1/ Salad dressings and french dressings shall contain not less than 35% vegetable oil.

2/ Mayonnaise, mayonnaise dressing and mayonnaise salad dressing shall contain not less than 65% vegetable oil.

SOURCE: Statistics Canada, Catalogue No. 32-018

CHAPTER 11

MARINE AND FISH OILS AND MEALS

Canadian Production and Trade of Marine Oils

Marine oil production on both coasts increased in 1978 over 1977 levels. Total production is estimated at 12 701 tonnes versus 6 635 in 1977.

Imports of marine oils increased by 59 per cent to 654 tonnes in 1978, valued at $699 000. Exports of marine oils declined to 9 397 tonnes valued at $4 633 000.

Canadian Production and Trade of Fish Meal

Production of fish meal increased on both coasts, to reach 69 717 tonnes, compared with 45 813 tonnes in 1977.

Exports of fish meal increased to 35 547 tonnes, up 25 per cent over 1977. The value of the 1978 export shipments was $16 520 000.

Table 56

CANADIAN PRODUCTION OF MARINE OILS BY TYPES AND AREAS

(Tonnes)

ATLANTIC COAST	1974	1975	1976	1977	1978[1/]
Body or Offal Oil:					
Groundfish	7 222	4 543	3 883	3 106	6 159
Herring	13 936	5 517	3 599	1 925	3 561
Other[2/]	755	18	54	387	514
Liver Oil:					
Groundfish	226	279	52	454	215
Seal Oil:	--	1 486	661	486	252
ATLANTIC TOTAL	22 139	11 843	8 249	6 358	10 701
PACIFIC COAST					
Body or Offal Oil:					
Herring	585	x[3/]	x[3/]	x[3/]	x[3/]
Salmon	415	x[3/]	x[3/]	x[3/]	x[3/]
Other	100	x[3/]	x[3/]	x[3/]	x[3/]
PACIFIC TOTAL	1 100	1 429	2 409	277	2 000
CANADA TOTAL	23 239	13 272	10 658	6 635	12 701

1/ Preliminary

2/ Primarily whale oil

3/ Confidential - to meet secrecy requirement of the Statistics Act.

SOURCE: Based on Environment Canada data.

Table 57

CANADIAN IMPORTS OF FISH AND MARINE OILS (NES)

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Denmark	1/	1	1/	--	--
France	1/	--	--	--	2
Germany, West	1/	--	4	--	--
Japan	89	--	9	9	10
Netherlands	--	--	6	--	16
Norway	179	629	150	3	155
South Africa	92	--	--	--	1
United Kingdom	165	49	28	5	182
United States	322	199	99	393	288
TOTAL	849	878	299	410	654
TOTAL VALUE ($'000)	467	500	233	263	699

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 58

CANADIAN EXPORTS OF MARINE OILS BY TYPES

(Tonnes)

TYPE	1974	1975	1976	1977	1978
Cod Liver Oil, Sun Rotted	1 043	868	1 381	915	1 546
Herring Oil	5 488	2 277	5 315	4 124	3 679
Whale Oil	--	--	5	14	11
Fish and Marine Animal Oil NES	2 313	1 746	3 408	10 987	4 161
TOTAL	8 845	4 891	10 110	16 040	9 397
TOTAL VALUE ($'000)	3 763	1 837	2 968	3 950	4 633

SOURCE: Statistics Canada, Catalogue No. 65-004.

Table 59

CANADIAN PRODUCTION OF FISH MEALS BY TYPES AND AREAS

(Tonnes)

ATLANTIC COAST	1974	1975	1976	1977	1978 [1]
Groundfish	26 700	25 708	33 342	33 606	47 811
Herring	16 484	14 327	13 047	6 789	7 513
Other	2 321	589	4 387	4 136	2 508
ATLANTIC TOTAL	45 505	40 624	50 776	44 531	57 832
PACIFIC COAST					
Herring	4 711	x [2]	x [2]	x [2]	x [2]
Salmon	887	x [2]	x [2]	x [2]	x [2]
Other	554	x [2]	x [2]	x [2]	x [2]
PACIFIC TOTAL	6 152	6 540	10 013	1 282	11 885
CANADA TOTAL	51 657	47 164	60 789	45 813	69 717

[1] Preliminary

[2] Confidential - to meet secrecy requirements of the Statistics Canada Act

SOURCE: Based on Environment Canada data.

Table 60

CANADIAN IMPORTS OF FISH MEAL

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Cuba	--	--	163	--	--
Denmark	10	--	--	--	--
France	--	59	--	--	--
Germany, West	1/	--	229	--	--
Japan	--	2	--	--	--
Puerto Rico	--	41	40	--	--
Taiwan	--	--	--	13	--
United Kingdom	2	--	7	--	2
United States	245	209	521	451	340
TOTAL	261	311	962	464	342
TOTAL VALUE ($'000)	83	87	309	153	91

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 61

CANADIAN EXPORTS OF FISH MEAL AND CONDENSED SOLUBLES

(Tonnes)

TYPE	1974	1975	1976	1977	1978
Herring Meal and Pilchard Meal	16 281	14 733	14 972	11 181	11 484
Fish Meal NES	18 393	9 515	17 000	16 445	23 546
Fish Condensed Homogenized Solubles	---	43	941	307	517
TOTAL (Meal Only)	34 678	24 291	32 913	27 933	35 547
TOTAL VALUE (Meal Only) $'000	12 160	6 071	9 422	11 367	16 520

SOURCE: Statistics Canada, Catalogue No. 65-004.

CHAPTER 12

OTHER INEDIBLE FATS AND OILS

The products grouped in this classification are castor, tung and tall oils, tall pitch, tall oil fatty acids, chemically modified oils, fats and waxes, and mixtures and derivatives of oils, fats and waxes.

Imports of castor oil increased by 28 per cent in 1978, to a value of $1 719 000. Tung oil imports decreased very slightly but the value increased by 21 per cent. Tall oil imports declined in volume but increased in value.

Imports of chemically modified oils, fats and waxes increased rather sharply in 1978 to 7 865 tonnes compared to 6 132 tonnes the previous year. The value of these imports rose 59 per cent to $8 581 000 versus $5 405 000 in 1977.

Imports of mixtures and derivatives of oils, fats and waxes were down slightly in volume but increased 25 per cent in value, to $13 746 000.

Exports of chemically modified oils, fats and waxes increased to 4 191 tonnes, valued at $1 249 000. Comparable figures for 1977 were 3 846 tonnes valued at $2 803 000.

Table 62

CANADIAN IMPORTS OF CASTOR OIL

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Brazil	1 529	1 697	968	257	843
Ecuador	--	--	--	29	250
United States	320	211	345	1 025	591
TOTAL	1 850	1 908	1 313	1 311	1 684
TOTAL VALUE ($'000)	1 646	1 169	822	1 343	1 719

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 63

CANADIAN IMPORTS OF CHINAWOOD OIL OR TUNG OIL

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Argentina	127	141	70	29	160
Brazil	--	--	14	--	--
Denmark	--	--	1/	--	--
Paraguay	42	56	381	223	85
People's Republic of China	183	70	20	--	--
United States	70	423	247	433	380
Uruguay	--	--	--	14	--
TOTAL	425	690	734	699	680
TOTAL VALUE ($'000)	308	441	663	1 371	1 662

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 64

CANADIAN IMPORTS OF TALL OIL, TALL OIL PITCH AND TALL OIL FATTY ACIDS

(Tonnes)

TALL OIL AND TALL OIL PITCH	1974	1975	1976	1977	1978
United States	2 254	2 378	2 849	757	1 167
TALL OIL FATTY ACIDS					
Germany, West	--	--	15	--	--
People's Republic of China	--	2	--	--	--
United States	4 715	5 503	4 806	5 159	4 577
TOTAL	6 969	7 433	7 670	5 916	5 744
TOTAL VALUE ($'000)	3 500	3 447	2 906	3 252	3 322

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 65

CANADIAN EXPORTS OF CHEMICALLY MODIFIED OILS, FATS AND WAXES

(Tonnes)

DESTINATION	1974	1975	1976	1977	1978
Australia	1	--	--	--	91
Bahamas	1/	--	--	--	--
Barbados	--	27	--	--	--
Bermuda	--	--	--	--	1
France	32	14	--	--	--
Germany, West	24	1/	2	--	--
Guyana	--	1/	--	--	--
Israel	--	4	--	--	--
Japan	240	20	--	--	--
Leeward-Windward Is.	--	--	--	1/	--
Netherlands-Antilles	1	--	--	--	1
Poland	--	--	1/	--	--
United Kingdom	36	18	--	150	--
United States	1 759	3 212	3 008	3 100	4 004
U.S.S.R.	--	--	--	508	--
Venezuela	1	9	1	86	48
TOTAL	2 097	3 306	3 012	3 846	4 191
TOTAL VALUE ($'000)	995	578	663	2 803	1 249

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-004.

Table 66

CANADIAN IMPORTS OF MIXTURES AND DERIVATIVES OF OILS, FATS AND WAXES

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Belgium-Luxembourg	1	--	--	--	--
Brazil	--	20	--	--	45
Denmark	--	--	--	2	--
France	3	6	1	1/	1
Germany, West	103	98	116	116	43
India	--	--	1/	--	--
Japan	--	--	--	--	1
Netherlands	1	--	1/	--	28
Norway	--	--	118	237	256
Sweden	--	--	--	--	1
United Kingdom	66	153	316	604	3
United States	14 780	10 886	12 031	10 555	9 833
TOTAL	14 958	11 163	12 585	11 516	11 271
TOTAL VALUE ($'000)	10 022	8 415	9 195	10 969	13 746

1/ Less than one tonne .

SOURCE: Statistics Canada, Catalogue No. 65-007.

Table 67

CANADIAN IMPORTS OF CHEMICALLY MODIFIED OILS, FATS AND WAXES

(Tonnes)

COUNTRY OF ORIGIN	1974	1975	1976	1977	1978
Brazil	20	69	--	40	40
Denmark	--	1/	--	--	--
France	3	--	--	--	1
Germany, West	8	8	72	69	79
Greece	--	3	--	3	--
Israel	--	--	1/	--	--
Japan	--	--	--	--	--
Netherlands	398	442	214	116	281
Netherlands-Antilles	--	23	--	--	1
Switzerland	--	1/	--	--	--
United Kingdom	55	1 125	1 219	53	99
United States	5 198	4 176	4 606	5 848	7 363
TOTAL	5 677	5 850	6 112	6 132	7 865
TOTAL VALUE ($'000)	5 401	6 925	6 084	5 405	8 581

1/ Less than one tonne.

SOURCE: Statistics Canada, Catalogue No. 65-007.

EXTRACTION RATE OF VARIOUS OILSEED CROPS

Oilseed Products	Extraction Rate (Per Cent)	Yield Per Tonne (Kilograms)
Flaxseed, Oil	35.4	354
Linseed Meal	61.7	617
Soybeans, Oil	17.7	177
Meal	80.0	800
Rapeseed, Oil[1/]	40.0	400
Meal	57.5	575
Sunflowerseed, Oil[2/]	40.0	400
Meal	38.0	380

1/ Rapeseed oil yields seem to have reached a fairly stable level of about 40 per cent on an "as received" basis. The previous factor of 37.5 per cent has been changed accordingly.

2/ The introduction of new sunflowerseed varieties has increased the oil yield on crushing to the 40 per cent level. The previous factor of 36 per cent has been changed accordingly. The meal yields continue to show fluctuations, and this factor has not been changed.