# Oilseed demand never saturated

World demand for oilseeds has never been saturated. For only brief periods has supply run ahead of demand. Growth in demand follows growth in supply; not the reverse.

This is not true for food grains, and to a certain extent, it is not true for feed grains. Demand for food grains grows just about the same as population increases. Demand for feed grains grows somewhat faster as additional areas of the world adopt more sophisticated animal feeding programs.

For oilseeds, there is growth potential that is limited *only* by what can be produced, shipped, processed and made available to consumers at a price they can pay. This is because for most of the world's population the per capita consumption of fats and protein is only a fraction of what it could and should be. It will increase when that is possible. That is certainly not possible when the products are scarce and price is high. It is only possible during the periods of ample supply and moderate-to-low prices.

Of course, when supply is ample and price low, producers are discouraged and switch to alternative, more atrractive crops for a season or two. Invariably prices go up because the expanded demand is not being supplied adequately. Then of course, it follows that the higher prices attract farmers back into oilseeds production. And the cycle starts all over again.

## Per capita consumption

World availability of fats and oils of all categories has expanded by 34% since 1963. It has risen from 10.2 kg per person to about 13.7 in 1979. But, expressed in total tonnage, it has grown by 83% in that time.

How can this be? Population has grown by 36%. That's right! We had an increase of 1,200 million people, from 3,163 million to 4,327 million. With that kind of population growth, we should be very thankful for the 83% increase in availability. It would not be sufficient to have just kept up with population growth and not allow peoples' diets to be improved. Such stagnation would no doubt result in greater world tensions than now exist.

In this context, it would be well to cite the projection that by 1987 world population will approach approximately 5,000 million persons. Again, it must be cautioned that per capita availability must also increase lest there develop an intense conflict for what suppleis there are.

## Growth areas defined

It would be of interest to distinguish where the changes in production have taken place and where they are likely to be. These changes make interesting reading, both in retrospect and in anticipation (Table I).

**TABLE I**

**Production Comparisons**

| Principal seed crops* | | |
|---|---|---|
| 1963 | | 1979/80 |
| 3,810,000 MT | Soybean | 14,804,000 MT |
| 1,060,000 MT | Rapeseed | 3,628,000 MT |
| 2,380,000 MT | Sunflower | 5,513,000 MT |
| 2,910,000 MT | Peanut | 3,313,000 MT |
| 2,295,000 MT | Cottonseed | 3,324,000 MT |
| Tree crops | | |
| 1963 | | 1979/80 |
| 925,000 MT | Olive | 1,354,000 MT |
| 2,130,000 MT | Coconut | 3,275,000 MT |
| 1,350,000 MT | Palm | 4,340,000 MT |
| Animal fats | | |
| 1963 | | 1979/80 |
| 3,905,000 MT | Lard | 3,766,000 MT |
| 3,970,000 MT | Butterfat | 5,115,000 MT |
| 3,600,000 MT | Tallow & grease | 5,865,000 MT |
| Marine oils | | |
| 1963 | | 1979/80 |
| 1,018,000 MT | | 1,065,000 MT |
| Industrial oils* | | |
| 1963 | | 1979 |
| 1,608,000 MT (mostly linseed and castor) | | 1,567,000 MT |

*Oil content of seeds produced. Some seeds may have been carried over for processing in later seasons.

Marine oils are holding virtually unchanged when we compare 1963 and 1979, with minor fluctuations in the interim. This is certainly contrary to what was expected 20 years ago when it was felt that the sea would be depended upon to yield an ever-increasing source of oil and meal, with no limit imagined. History has shown how grossly mistaken was this presumption.

Industrial oils are also virtually unchanged, with minor interim fluctuations. This has resulted primarily from reduced subsidization of production plus increased competition by other crops which became more attractive. Also involved was the concept that petroleum derivative substitutes would always be available and at more economical prices. That of course is now realized to be erroneous, and demand for these oilseeds may be expected to gain some acreage over other crops in the future.

Animal fats show almost no change for lard, as the swine

Continued on page 342A.

industry has moved toward less fat and more lean meat. There has been an increase, however, in fats from cattle. Butter fat has advanced 29% and tallow is up 63%. Part of both of these increases can be attributed to the uneconomical support programs of the EEC and must be expected to not continue in the future because severely high costs are straining taxpayers in those countries to the breaking point. The balance of the tallow increase resulted from beef cattle feeding expansion in the U.S. But the expansion leveled off four years ago when certain tax advantages were repealed. These had attracted a huge amount of outside money into the industry for no other valid economic reason. That stimulus will not be repeated.

Tree crops include olive, coconut and palm. There has been nominal increases in olive, allowing for the wide fluctuations from year to year for weather factors, and probably will continue this way. Coconut began an increased trend in the 1970s related to improved cultural practices. It advanced by 55%. This trend should continue. Palm has seen the dramatic expansion of 221%, primarily caused by the sophisticated projects in Malaysia. To some extent, those efforts were offset by reductions in Africa. There should be another 50% increase by 1985 because of investments already made, but after that, the growth rate should be greatly reduced. Advancing prices of petroleum have made natural rubber once again an economically interesting crop, so tropical countries are shifting attention in that direction instead of toward more palm oil.

Edible oilseeds have had the most dramatic development besides palm oil. Soybeans, of course, is the most important. This crop has grown by 289%, mostly in the U.S. and Brazil, and more recently in Argentina. Not much more growth is likely in the U.S. unless there is further significant development in yield improvement. The competition for acreage to grow grain crops will be intense as these crops are now being welcomed as a source for fuel alcohol. In fact, that development, plus the use of corn for sugar manufacture will result in more oil and protein from corn. This is causing some concern in the soybean industry, but those products will be necessary, just as all previous expansions have readily been absorbed by increasing demand. Brazil and Argentina may achieve some success in making further advancements in soybean production, but the rate will diminish as fuel costs continue to advance. Competition of other crops even now is causing some diversion away from soybeans.

Rapeseed has increased by 241%, largely from its development in Canada. No appreciable advances are likely in any single country, but collectively a moderate growth is likely. Sunflower has grown by 132%, and most of the attraction in recent years has been in the U.S. It is difficult to anticipate further growth of a similar magnitude continuing because of cultural limitations, but whatever growth can be attained will be easily absorbed in a demand expansion period that lies ahead. Peanut development has been only 14%, largely held back by cultural and political problems in Africa plus crop competition in other countries. Cottonseed has expanded only 45%, again because of crop competition. It could continue this growth rate as demand for cotton fiber is picking up, but there is an ominous concern now showing up. That is potential shortage of irrigation water in principal growing areas of the U.S. We suppose a similar problem is likely for the USSR.

Within the context of examining past and future production patterns, it should be noted that there has been a most dramatic shift in the international trade. Some of the previous leaders in export business are now importers! Most noteworthy is China, because of the potentially large demand in that country. Next is the USSR. Remember as recently as the late 1960s, Russia sold so much sunflower oil into Western Europe that the EEC imposed countervailing duties. Then there is Peru with the heavy sales of fishmeal and oil in the 1960s to early 1970s, with no prospect now of repeating that performance in the future. West Africa used to be large exporters of peanut and palm products, but political and weather problems have sharply reversed that pattern. Finally, there is Indonesia which is no longer a net exporter of coconut oil. With such significant adjustments as these, it is no longer practical to fear the competition from more recently developing major exporters such as Canada, Malaysia, Brazil and Argentina. Without the development of those countries to fill the gap of world need, the world food balance would be in sad shape indeed.

## Weather factors

Reference was made to shortages of irrigation water supplies. To some extent, this relates to weather, especially where the water comes from surface runoff through a system of dams and canals. But more critical is the overexploitation of underground supplies, which are not rechargeable. We know that this already reached a critical level in the western and southwestern states of the U.S., and we suspect in other countries such as the USSR. It simply means that crop acreage expansion of this type has ended, and reduction is likely.

But more important than this is the general weather patterns and cycles, for they affect crops everywhere, including those grown with surface runoff irrigation. In North America, there is a well-defined pattern of moisture deficiency developing during the first half of each decade, especially near the middle, followed by ample moisture in the latter half and leading into the next decade. This strongly implies that today's surplus will be quickly absorbed when production begins to lag behind demand growth trends.

We note, conversely, that the dry/wet cycle in South America appears to be just the opposite from North America. If this holds true, then the crop developments there should be very timely to fulfill world demand that could not be accomodated otherwise.

## Price

Volatility is to be expected to continue. Everyone's price horizon has been enlarged since the wild action of 1973. Prior to that, no one expected so much price action in either direction, so that itself helped keep things less volatile. Since then, both buyers and sellers expect volatility, so they contribute to it. Sellers know they can get high prices if they can wait long enough. Buyers know they may have to pay high prices, so are not too suprised when that

Continued on page 344A.

happens.

Probably the greatest surprise to many traders has been the price weakness of recent weeks. It has been concluded that if inflation continues to grow, then prices should keep moving up. Forgotten was the basic fact that when more of an edible commodity is produced than can be moved into consumption before the next harvest, price can go down.

How low can price go? It can go down to the level at which it is supported by government subsidy. Those support programs are designed to be somewhat below costs of production, and gradually advancing as those costs increase. This basic inflationary trend is best illustrated by viewing a long-term continuation chart. This shows weekly price range of the spot (nearest) futures month. It is easy to see the basic inflationary uptrend. Prices have been higher during times of delicate supply/demand balance. But they came right back down to it in times of ample supply. I would not expect this uptrend line to be penetrated but if it's violated decisively, that would be evidence that the economy is in serious trouble; more serious than it has been popular to discuss.

### Demand outlook

In conclusion, I want to refer back to my earlier remarks about per capita consumption. The U.S. has a figure of 58 lbs. per year. This is 26.4 kilos. It is impractical to imagine that the world would ever approach this figure. China probably has a figure of about 13 kilos, half vegetable oil and half animal fats. India has only 5.5 to 6.0 kilos, almost entirely vegetable oil, because the people are mostly strict vegetarians. If just China and India should be able to increase per capita consumption by just one kilo per year at today's population, it would require 1,650,000 metric tons additional fats and oils. This would nearly wipe out the expected carryover of soybeans in the U.S. next Aug. 31.

Looking at it another way may be even more important. Considering that world population will reach 5,000 million by 1987, what would be the fats and oils availability that would be necessary to just hold equal to 1970? It would be 9 million tons larger! No more than one-third of that can be made up by the expected increase in palm oil production. No more than one-third can be made up by the expected increase in South American soybean production. The other one-third probably can be contributed by expansions in rapeseed, sunflower, coconut and lard production.

But it is not healthy politically, socially or ethically to consider no dietary improvement from 1979 levels. So if we apply the per capita growth rate since 1963 to the population growth rate, then availability by 1987 would have to increase by 18 million tons! Where that additional 9 million tons will come from, I frankly don't know. But there is the challenge to the production and marketing sectors of our economy. The demand is not likely to be saturated. Far from it! Even though at the moment it seems to be, it's only a temporary phenomenon that frequently happens when good weather causes supply to advance too sharply. The demand expansion can lag behind for a season or two, but will quickly catch up. There is ample evidence that this law has not been repealed.

David M. Bartholomew, *Soybean Complex, Merril Lynch Pierce Fenner & Smith, Inc.*

# Soybean crush: 1:1 billion bushels

U.S. soybean crushings for the 1979/1980 season are expected to total about 1.1 billion bushels, up about 10% from last season's record crush, according to a report in the February 1980 USDA "Fats and Oils Situation." The rise mainly reflects larger hog and poultry production, increases in soybean feeding as a result of lower meal prices and favorable processing margins. The annual U.S. processing capacity is currently estimated at 1.35 billion bushels.

Oil yield per bushel of soybeans crushed this marketing year is down slightly from last season, about 10.75 pounds compared to last season's 11 pounds. Meal yield per bushel is up about one pound above 1978/1979, averaging 47.8 pounds. Decreased oil yield may have resulted from last August's below-normal temperatures, the report said.

Soybean oil supplies in 1979/80 are projected at about 12.5 billion pounds compared to last season's 12 billion pounds. The report forecasts domestic use at 9.4 billion pounds, up 5% from 1978/1979. This increased use of soybean oil can be attributed to its lower price, despite large supplies of cottonseed and sunflower oils.

Soybean exports during the 1979/1980 season are predicted to be up by 8% over last year, to about 0.8 billion bushels. Lower U.S. prices, plus growth in meal and oil demand overseas will encourage the increased exports, the report said. Major markets for beans and meal are West and East Europe, Japan, Korea, Taiwan and Mexico.

As sunflower production increases through the 80s, the U.S. will likely replace the USSR as the world's leading producer of the crop. With this continued expansion, sunflower is expected to compete increasingly with soybeans for both land and markets. Crushing and nonoil use of sunflower for the 1979/1980 season is projected at 0.7 million tons, up about 70% over last year.

Larger cottonseed production yields and acreage will probably result in an output increase of 5.8 million short tons, compared to 4.3 million last season. However, crushing capacity may not be adequate to process this larger crop, and prices may fall as a consequence.

Production of lard in 1979/1980 is expected to increase from 1.1 billion pounds to 1.3 billion pounds, caused mainly by larger numbers of hogs slaughtered.

Peanut supplies, about 4.6 billion pounds, will be about the same as in 1978/1979. Peanut exports have been at a record high the last two seasons and 1979/1980 promises to be another good year, the report said.

Flaxseed supply will total about the same as last season, about 18 million tons. But gradually increasing flaxseed supplies and relatively low crushings have resulted in a steady decline in prices received by farmers.

Production of edible and inedible tallow for the 1979/1980 marketing year is projected at about 7 billion pounds, up slightly from last year because of increased cattle slaughter at heavier weights and more hogs killed. Domestic use of tallow may increase slightly, a result of higher petrochemical feed stock prices, but exports may lag behind the 2.7 billion pounds of last season. □

# Sunflower on unit train to Mexico

Agricom International announced earlier this year the shipment of sunflower seed from Arthur, ND, to Camara Nacional de la Industria de Aceites, Grasas y Jabones, Mexico City, on a unit train of 30 giant hopper cars. Use of a unit train is expected to help avoid port congestion and railroad yard switching problems in transporting sunflower into Mexico. □

# Emery affiliate now Rewo Chemicals Ltd.

Dutton & Reinisch, a London-based specialty chemicals manufacturer, has changed its name to Rewo Chemicals Ltd. The firm is part of the Rewo Chemical Group, an international group of specialty chemicals manufacturers of amphoterics, sulfosuccinates and other surfactants and specialty chemicals. The new name was chosen to better reflect the firm's role in the Rewo Group, as well as its international scope. The entire Rewo Group is a subsidiary of Emery Industries, Inc., USA.

# 1977 census sets oil shipments at $7.3 billion

Recently released data from the 1977 Census of Manufactures shows U.S. vegetable oil mills shipped products worth $7.3 billion that year, compared to $3.33 billion in 1972. Dollar values are not adjusted for inflation; the survey is taken every five years (Table I and Fig. 1).

The animal and marine fats and oils industry shipped $2.13 billion worth of products in 1977 compared to $977 million in 1972, the preliminary report said.

Soybean oil mills shipped $2.076 billion worth of soybean oil during 1977 ($808 million in 1972). Total value of shipments of soybean cake, meal and other by-products during 1977 was $4.014 billion ($1.844 billion in 1972 (Table II).

Cottonseed oil mills shipped $383.1 million worth of cottonseed oil in 1977 ($199.3 million in 1972). Value of cotton linter was $43.4 million in 1977 ($29.2 million in 1972). Cottonseed cake, meal and other byproduct shipments totaled $324 million in 1977 ($175 million in 1972). See Table III for details.

Other vegetable oil mills shipped products worth $417 million in 1977 ($263.4 in 1972), including $300 million worth of oil ($201.8 million in 1972). See Table IV for details.

The census' statistics for the animal and marine fats and oils industry do not include edible tallow. The census showed the industry shipped $1.011 billion worth of grease and inedible tallow, $747.6 million worth of feed and fertilizer byproducts and $259.4 million worth of other products, including foots. Comparable figures for 1972 were $ 419.4 million, $389.2 million and $121.8 million, respectively (Table V).

Soybean oil mills consumed 23,216 thousand tons of soybeans, 147.8 thousand tons of cottonseed and 946.8 tons of crude soybean oil in 1977. Cottonseed oil mills used 3,718 thousand tons of cottonseed, 87.8 thousand tons of other oilseeds and 100.7 thousand tons of crude and once-refined cottonseed oil. Other vegetable oil mills used 135.5 thousand tons of soybeans, 43.8 thousand tons of cottonseed and 76.3 thousand tons of other seeds, nuts and beans.

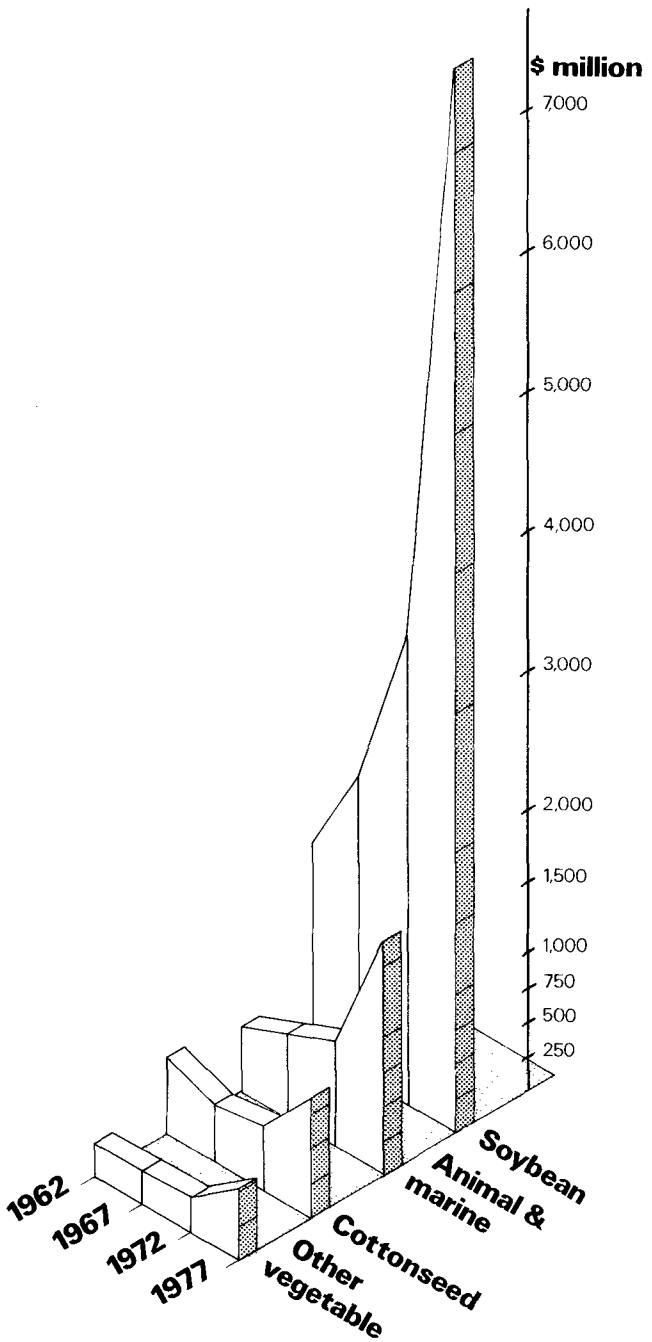


FIG. 1. Value of shipments of fats and oils manufacturing establishments. This figure reflects total value of shipments of all establishments classified in the industry, including products classified in this industry (primary to the industry) and products classified in other industries, but secondary to the fats and oils industry, as well as miscellaneous receipts. Product shipment figures quoted in the text represent total value of shipments of products classified as primary to the fats and oils industry, regardless of classification of the manufacturing establishment.

**TABLE I**

**Fats and oils manufacturing units, employees and fiscal data[a]**

| | | Number of establishments | Number of employees | New capital expenditures | Fixed assets |
|---|---|---|---|---|---|
| | | | (1,000) | (million dollars) | |
| Soybean oil mills | 1977 | 122 | 9.4 | 72.5 | 896.5 |
| | 1972 | 94 | 9.1 | 41.9 | 544.5 |
| | 1967 | 102 | 8.0 | 21.2 | 339.2 |
| | 1963 | 102 | 6.5 | 10.2 | 251.4 |
| Cottonseed oil mills | 1977 | 98 | 5.2 | 13.0 | 199.4 |
| | 1972 | 115 | 5.5 | 9.9 | 164.0 |
| | 1967 | 150 | 5.4 | 4.9 | 178.7 |
| | 1963 | 188 | 8.4 | 12.5 | 187.7 |
| Other vegetable oil mills | 1977 | 43 | 1.6 | 7.5 | 69.3 |
| | 1972 | 31 | 1.1 | 3.0 | 38.4 |
| | 1967 | 41 | 1.7 | 1.9 | 47.8 |
| | 1963 | 47 | 2.0 | 1.6 | 41.1 |
| Animal & marine fats & oils | 1977 | 502 | 12.6 | 53.5 | 461.0 |
| | 1972 | 511 | 11.6 | 31.0 | 316.3 |
| | 1967 | 588 | 13.7 | 21.7 | 227.8 |
| | 1963 | 615 | 14.3 | 13.7 | 228.4 |

[a]Source: 1977 Census of Manufactures.

**TABLE II**

**Soybean oil mill production[a]**

| | 1977 | | | 1972 | | |
|---|---|---|---|---|---|---|
| | Quantity of production for all purposes | Quantity of product shipments | Value | Quantity of production for all purposes | Quantity of of product shipments | Value |
| | (1,000,000 lbs) | | ($1,000,000) | (1,000,000 lbs) | | ($1,000,000) |
| Soybean oil | | | 2,076.3 | 14,453.3 | 6,814.2 | 802.2 |
| Crude | 8,826.6 | 7,599.3 | 1,811.6 | 7,998.0 | 6,050.0 | 704.0 |
| Degummed | 4,897.2 | 4,246.3 | 1,010.9 | 5,130.7 | 3,990.6 | 470.2 |
| Not degummed | 3,929.4 | 3,353.0 | 800.7 | 2,867.3 | 2,059.4 | 233.8 |
| Once-refined | 7,513.9 | 868.1[b] | 220.7 | 6,455.3 | 764.2[b] | 98.2 |
| Processed for inedible purposes | 150.6 | 160.3 | 43.6 | | | |
| Soybean cake, meal and other byproducts | | | 4,014.2 | | | 1,844.1 |
| Meal | 36,159.4 | 36,072.6 | 3,735.1 | 33,739.0 | 34,214.2 | 1,732.8 |
| Soy flour and grits | 907.5 | 807.8 | 128.1 | 473.7 | 454.2 | 53.7 |
| Lecithin | 49.1 | 67.9 | 18.1 | 66.5 | 69.1 | 9.5 |
| Millfeed (hull meal) | 1,285.4 | 1,171.4 | 41.9 | 1,015.8 | 928.2 | 19.0 |
| Other soybean byproducts, including isolates, concentrates | 215.3 | 218.6 | 91.0 | 200.3 | 199.2 | 29.1 |

[a]Does not include estimated data for firms with fewer than 5 employees.

[b]Oils processed by bleaching, deodorizing and/or winterizing not included; they are included in shortening and cooking oils manufacturing establishments. Oils for inedible purposes includes those acid-refined, boiled, blown, heat-treated or chemically modified.

**TABLE III**

**Cottonseed oil mill production[a]**

| | 1977 | | | 1972 | | |
|---|---|---|---|---|---|---|
| | Quantity of production for all purposes | Quantity of product shipments | Value | Quanity of production for all purposes | Quantity of product shipments | Value |
| | (1,000,000 lbs) | | ($1,000,000) | (1,000,000 lbs) | | ($1,000,000) |
| Cottonseed oil | | | | | | |
| Crude | 1,276.5 | 644.1 | 146.6 | 1,292.6 | 1,021.9 | 125.9 |
| Once-refined | 1,151.5 | 893.6 | 236.5 | 1,140.6 | 504.5 | 73.4 |
| Cotton linters | 669.5 | 666.9 | 43.4 | 726.0 | 718.5 | 29.2 |
| Cottonseed cake, meal, other byproducts | | | 324.0 | | | 175.0 |
| Cake and meal | 3,471.8 | 3,397.0 | 279.2 | 3,850.2 | 3,787.8 | 151.8 |
| Hulls | 1,995.4 | 2,055.8 | 34.6 | 2,055.6 | 2,069.0 | 22.1 |
| Other byproducts | 375.0 | 379.2 | 9.5 | 104.2 | 109.0 | 1.1 |

[a]Does not include data for establishments of less than 20 employees.

**TABLE IV**

**Vegetable oil mills (other than corn, soybean, cottonseed)[a]**

| | 1977 | | | 1972 | | |
|---|---|---|---|---|---|---|
| | Quantity of production for all purposes | Quantity of product shipments | Value | Quanity of production for all purposes | Quantity of product shipments | Value |
| | (1,000,000 lbs) | | ($1,000,000) | (1,000,000 lbs) | | ($1,000,000) |
| Linseed oil | | | 72.5 | | 501.7 | 44.4 |
| Raw and boiled | 222.9 | 61.4 | 15.1 | 482.8 | 341.3 | 29.1 |
| Processed | 249.1 | 197.4 | 57.0 | | 160.4 | 15.3 |
| Oil not specified by kind | | | 0.4 | | | |
| Coconut oil (once-refined)[b] | 729.4 | 92.1 | 28.9 | 646.5 | 168.4 | 21.2 |
| Peanut oil | | | | | | |
| Crude | 236.9 | 216.4 | 57.7 | 210.6 | 164.6 | 26.6 |
| Once-refined | 250.4 | 63.2 | 11.1 | 166.6 | | |
| Other vegetable oils (including safflower, castor, tung, etc.) | | | | | | |
| Crude | 147.6 | | 57.9 | 282.6 | 228.1 | 35.9 |
| Palm (once-refined) | 225.9 | | | | | |
| Other vegetable oils (once-refined) | 235.2 | 46.3 | 16.6 | 417.8 | 140.5 | 21.0 |
| Linseed cake and meal | 426.8 | 414.2 | 30.5 | 879.2 | 966.2 | 34.1 |
| Peanut cake and meal | 507.4 | 501.0[c] | 37.4 | 209.2 | 209.2 | 10.1 |
| Other oilseed cake and meal | 268.2 | 286.6[c] | 16.2 | | | |

[a]Does not include data for mills with fewer than 10 employees, or oils and byproducts not specified by kind.

[b]Based partially on estimates.

[c]"Once-refined" does not include oils further processed by bleaching, deodorizing and/or winterizing.

**TABLE V**

**Animal and marine fats and oils**

| | 1977 | | 1972 | |
|---|---|---|---|---|
| | Quantity of product shipments | Value | Quantity of product shipments | Value |
| | (1,000,000 lbs) | ($1,000,000) | (1,000,000 lbs) | ($1,000,000) |
| Grease and inedible tallow | 6,192.9 | 1,011.2 | 6,012.0 | 419.4 |
| Inedible tallow, inedible animal stearin | 4,916.7 | 830.6 | | |
| Grease, other than wool | 1,045.3 | 146.8 | 6,012.0 | 419.4 |
| Grease, inedible tallow (not specificed by kind) | | 33.8 | | |
| Feed and fertilizer byproducts | 6,677.6 | 747.6 | 8,296.6 | 389.2 |
| Meat and bone meal | 3,627.4 | 412.2 | 7,376.6 | 340.1 |
| Dry rendered tankage | 1,190.9 | 121.8 | | |
| Feather meal | 349.4 | 38.8 | 289.4 | 16.3 |
| Other byproducts | 1,017.4 | 123.1 | 564.6 | 29.7 |
| Byproducts not specified by kind | | 51.7 | | 3.1 |
| Animal and marine oil products, including foots | | 259.4 | | 121.8 |
| Foots, animal, vegetable, fish and acidulated soapstock | | 71.1 | | 35.9 |
| Animal oil mill products, and all other animal oils, except fatty acids | 148.5[a] | 38.4 | 196.0 | 20.0 |
| Marine animal oil products: | | | | |
| Fish and marine animal oils | 230.4 | 38.9 | 214.4 | 20.5 |
| Fish scrap and meal | 710.0[a] | 101.7 | 554.2 | 36.0 |
| Other fish and marine animals oils | 66.8 | 4.4 | 178.1 | 5.3 |
| Animal, marine oil mill products, not specified by kind | | 4.9 | | 4.1 |

[a]Data based partially on estimates.