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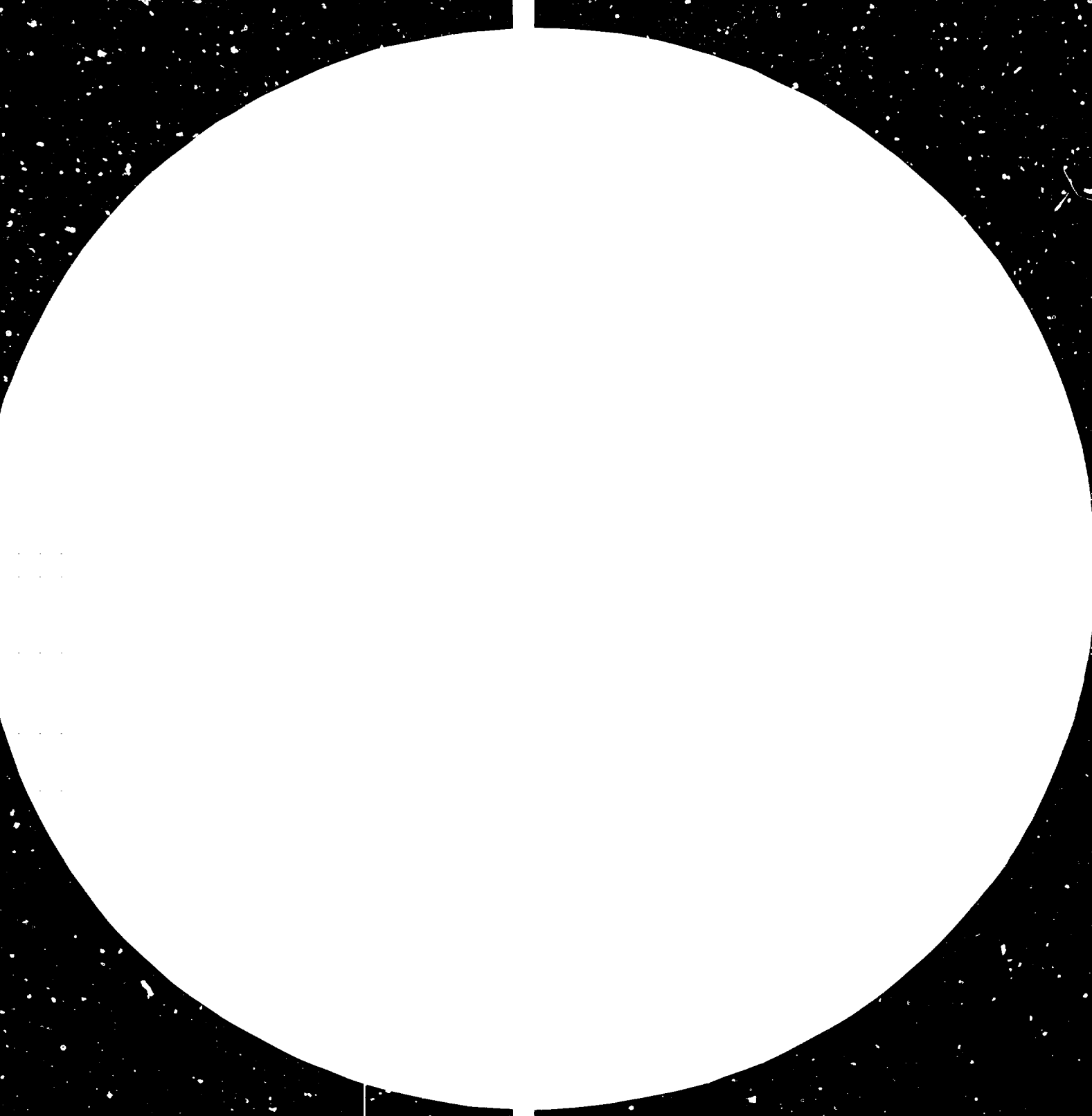
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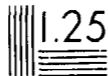
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VEGETABLE OIL INDUSTRY IN IRAQ

presented by the

Government of Iraq

90000

PREFACE

This document, Vegetable Oil Industry in Iraq, is one of 18 studies presented as supporting material to the Iraq country paper about the development of agro-industries and state of agricultural production and supplementary industries. We thought of presenting them to assist the reader in getting acquainted with the pioneering experiment in Iraq in the development of this field of our economic activities. This documentation reflects the great development achieved within the years that have already elapsed since the uprising of 17th July Revolution under the leadership of Arab Baath Socialist Party that aimed at achieving economic and social welfare for the people by rational use of the natural resources and elevating our country to the rank of advanced countries within a considerable period.

From the point of view of the Revolution leadership in Iraq, what has been achieved so far in the field of irrigation development, drainage, mechanization of agriculture, animal production, other agro-industries, and other infra-structural development in this field, are deliberate and effective steps towards reaching our aspiration.

In those studies we have tried to highlight the main development features, the negative sides as well as the positive results achieved so far with the objective of presenting our experience to brotherly and friendly countries in particular to those whose conditions and potentialities are similar to our country. This exchange of experience is not only a necessity but a duty imposed on us by our principles and the current international circumstances in which food weapon becomes one of the important weapons raised by imperialism in the face of developing countries. If those countries do not support each other and exchange national experience their task in achieving their food security will be, if not impossible, difficult to achieve.

We hope that our contribution together with that of other participating states and organizations will contribute to the success of this ministerial meeting on development of food industries in developing countries.

Preparatory Committee
for the Round-Table Ministerial Meeting
on Agro-Industry Development

VEGETABLE OIL INDUSTRY IN IRAQ

Introduction:

Fat and oil sources consumed by man could be considered in two parts:

1. Animal sources: This source, until twenty years ago, was considered the main source of oil for Iraqi people. It was taken from milk, as well as animal fat (especially sheep fat), animal sources were the only oil used for cooking.
2. Vegetable: This source was very limited. Small quantities were consumed by Iraqi people and was regarded a secondary source. Oil from this source is being produced from peanuts, coconut, and sesam among others.

Origins of Vegetable Oil Industry in Iraq

Due to the increasing demand on fat and oil for nutrition, the animal sources became insufficient to cover the total need of the country. It was necessary to be substituted totally or partially by vegetable oil. This resulted in the establishment of simple industry in 1945 by a private company. Vegetable oil was extracted from cotton seeds as a liquid, processed and filled in glass bottles. This was the first experience, which after beginning proved to be a failure due to consumer preference and animal fat production was returned to the factory because marketing was impossible. However, the animal oil was preferred by consumers. As a result, most of the production was returned to the factory.

However, these marketing difficulties did not stop the continuation of production process and its further development. Hydrogenation of cotton seed oils were used so that it resembled animal fat. This led to an increase in the consumption of this product. Two reasons have contributed to this increase: the scarcity of animal oil compared to consumption demand and the success in producing vegetable oils having almost the same physical characteristics of the animal fats.

It was natural that consumers rejected this new product and preferred the old, known one. However, as time passed, people got used to vegetable oil.

Another private company was established in 1953. Its production was also based on cotton seeds as a major source of vegetable oil along with peanuts. Simple machines were used. These two companies competed in order to produce a better quality, which could be accepted by the consumers.

For example, the products marketed in the north region had a different color than that marketed in the south. This difference was due to difference in animal oil color which resemble animal fat produced in these regions.

In addition to what we mentioned above, the reason for changing consumption to vegetable oil is that consumers became aware that vegetable oil has less bad effect on health, such as some cardio-diseases caused by animal oil, for cholesterol volume is less in vegetable oil.

The two companies were nationalized in 1964 and their total production did not exceed (35) thousand ton per annum. The production of vegetable oil increased further to satisfy the increasing demand on vegetable oil on one hand and to supplement the scarcity in the production as well as the high priced animal fat on the other.

The government started to support these two companies by increasing their productive capacity so as to enable them to meet the rising market demand.

In 1970, the two companies were integrated into one company which was called The State Company for Vegetable Oil and its production during that year reached about (60) thousand ton. The projected production for 1979 was (28) thousand ton, real production was 95% of the planned, i.e. real production for 1979 was (120) thousand ton for both liquid and solid vegetable oil.

If we consider the real production figures since 1960, we can note that it doubled each 9-10 years. This means that productive capacities of the company till 1985 must be about (170-180) thousand ton to cover local demand for both liquid and solid vegetable oil. Table (1) shows the development of the company for the period 1970-1979.

Consumption Development

Table (2) shows local consumption development during the last ten years. This clears the following points.

1. Consumption is increasing at higher rates than population growth, which means that consumption has not yet reached satisfaction point in the country.
2. Consumption volume is doubling each eight years.
3. Expected consumption for 1985 will be about (180) thousand ton, in 1990, it will reach (240) thousand ton.
4. If we take all factors into consideration, to estimate maximum personal consumption for vegetable oil in the light of food quality and cooking traditions and consumption method...etc., this figure will be about (15-16) kg./annum in 1990. After that, the rate of increase will be small, taken into account many other conditions.

Table (1)
Vegetable oil production development 1970 - 1979

Year	Solid Oil Per Ton	Liquid Oil Per Ton	Total Per Ton
1970	60.100	1.500	61.600
1971	71.000	2.250	73.250
1972	77.500	2.100	79.600
1973	72.000	1.950	73.950
1974	85.700	2.800	88.500
1975	91.800	2.700	94.500
1976	100.000	2.500	102.500
1977	109.000	3.650	112.650
1978	112.000	4.600	116.600
1979	113.000	4.700	117.700

Table (2)
Vegetable Oil Consumption

Year	Real Production Per Ton	Export Per Ton	Import Per Ton	Total Consumption Ton	Personal Consumption Ton
1970	61.600	870	-	61.500	6.5
1971	73.250	5000	-	74.000	7.6
1972	79.600	2000	-	74.000	7.34
1973	74.000	1600	-	80.000	7.71
1974	88.500	1000	-	89.000	8.1
1975	94.500	350	-	95.000	8.5
1976	102.500	600	-	100.000	8.7
1977	112.650	1500	-	112.000	9.3
1978	116.600	650	3000	125.000	10.1
1979	117.700	1150	22000	135.000	10.6
1985	180.000	-	-	180.000	12.5
1990	240.000	-	-	240.000	14.0

As we mentioned before, vegetable oil production changed from producing liquid oil to solid oil. By solid oil, we mean the one which looks to a certain extent like animal fat in its figure which is preferred by consumers. Its production in the country started after the increasing demand and the non-sufficiency of local production of oil seeds for oil extraction, purification and canning, therefore, the company started to import a certain kind of crude oil at moderate prices. This was crude palm fruit oil available in Southeast Asia and Central Africa.

Palm oil is a solid oil and its liquidity rate is (35-38)^om. It is appropriate for production during most seasons except in summer. Moreover, it is simply processed and gives high revenue.

The Increase of Productive Capacity

To cover the increasing consumption, the State Company for vegetable oils has continued to enlarge its productive capacities by establishing new projects in different areas of the country and expanded some of its existing factories and constructions. Additions were planned and studied so that modern machines are imported starting from the extracting machines for the crude oil ending with getting good quality product. Moreover, complementary units have been established such as metal and plastic container factories, suitable stores have been built...etc.

We will describe the State Company factories, productive capacity and projected expansions until 1985.

1 - Extraction Factory in Begi - Salah Eldin Governorate

Construction works started in 1976 and it was inaugurated in 1979. It is designed to produce crude oil.

Actually, this factory is working with half its designed capacity, which is (120) thousand tons of oil seeds at three working shifts. The volume of crude oil produced depend on seed kind and oil materials in them.

New production lines are actually under construction to refine and fill liquid and solid oil at a capacity of (200) tons/day. (150) tons/day of it is solid oil and (50) tons/day liquid oil.

2 - Baghdad Factories

These are considered the oldest factories of the company and they have the highest production capacity. It has two separate factories; the first is the Rashid Factory, with a capacity of (250) tons/day of solid fat and (20) tons/day of liquid oil and have two different processing methods in refining (Chemical and physical). The second is the Ma'amoun Factory, its actual productive capacity is (100) tons/day and expansions are now under construction to increase the capacity to reach (200) tons/day solid fat.

3 - The Motassim Factory in Missan

This factory was established in 1973, with a productive capacity of (50) tons/day. It was enlarged in 1978 to produce (100) tons/day.

As can be seen, the company's factories are geographically distributed in the country to facilitate product distribution according to regions. Here we must point out the problems facing the company in transporting crude oils and raw materials which are mostly imported via Basrah and transported to the factories by river ways and/or tankers.

We would like to mention here that the extracting factory in Begi is situated in an agricultural region where soya beans, sunflower, cotton seeds could be cultivated. It was expected that this factory could depend on local production, at least half of its capacity in 1980. However, as production figures for oil agricultural yield proved unsatisfactory and did not represent more than a small percentage of the factory's capacity. This fact obliged the company to import big quantities of oil seeds to meet the factory's demand of liquid oil.

Fat and Oil Processing Methods in Iraq

Vegetable fat and oil are generally produced from two major sources: First, local or imported oil seeds, crude oil is extracted from them then refined. Second, crude vegetable oil and fat are imported from different countries according to specifications needed, these are purified and filled.

The State Company for vegetable oil uses the most modern methods in extracting crude oil from the seeds that is the direct extracting. This means that the cleaning and peeling, if necessary, then oil seeds are introduced in the extracting machines directly without mechanical pressing.

Vegetable oil industry in Iraq has been transformed to the method of direct extraction since 1973, by dissolving cotton seeds which are considered the most unfavorable seeds for this transformation of the high percentage of oil in its pulp.

<u>Month</u>	<u>Oil Rate in Extracted Cake</u>	<u>Oil Rate in Pressed Cake</u>
January	0.8%	5.5%
February	1.0%	8.0%
March	1.4%	7.6%
April	1.3%	7.7%
May	1.3%	9.0%

This process was applied on sunflower, soya, saf flower and linseed seeds successfully. This resulted in a decrease of the maintenance cost and loss of oil in the remaining cakes to become which amount to no more than 1% after it acceded 6% in using mechanic pressing methods.

Moreover, the company possess modern machines for processing different kinds of vegetable oils and fats to get good specifications which conform to the established standard.

Generally, we can say that there does exist two major methods for processing crude oil and fat. They are:

- The chemical process
- The physical process

The chemical process which was mentioned before was the oldest method applied for refining and processing. However, oil industry in the world is avoiding this process because of its high cost in production.

Physical Purification

This process has been introduced for (15) years in the company. The first machine was erected and run in 1965. All expansion that took place have been using the same method and the last one in Begi Factory has a production capacity of

(200) tons/day. In addition, consideration was given to produce all specifications of crude oil and fat throughout the expansion.

This method is the most economic for crude palm oil refining. All other kinds of oil (except cotton seed oil) could be processed similarly by using different pre-treatment methods before refining.

Below, a comparative table for approximate cost of purifying (100) ton of crude palm oil in the chemical and physical method is compared:

	<u>Chemical</u> <u>ID</u>	<u>Physical</u> <u>ID</u>
- Manpower	54	36
- Caustic Soda, Salt and others	100	-
- Bleaching dust	200	100
- Auxilliary materials (filtration paper, cloth...etc.	8	34
- Steam, electricity, water	125	104
- Extinction and others	307	255
	<u>794</u>	<u>529</u>

It is produced by the chemical method (90) ton oil x (230) I.D. for each ton + (9) ton raw soap material x (100) I.D. for each ton.

Total: $90 \times 230 + 9 \times 100 = 21600$ dinar

as for the production by the physical method

94 ton oil x 230 dinar

+ 5 ton fat acid x 120 dinar

+ 0.5 ton raw soap material x 100 dinar

Total: $94 \times 230 + 5 \times 120 + 0.5 \times 100 = 22270$ dinar

Total Difference = $670 + 265 = 935$ dinar for each (100) ton.

Or, in other words, the cost to process one ton of oil in the physical method is less by approximately 9-95 dinar than the chemical way.

Vegetable Oil and Fat Packing

Liquid oil is packed in plastic bottles of one liter and (10) liter metallic containers. In the future, it will be packed in bottles of (3) liters. As for solid fat, they are packed in one kilo plastic containers and metallic boxes of (10) kilos. In the future, it will be packed in (5) kilo metallic boxes.

Vegetable Oil Crops

Raw materials of vegetable oil industry are mainly oil seeds or crude oil. These represent about 81% of production costs. Since they are imported, this makes vegetable oil industry dependent on international market of oil seeds and crude oil, and the cost is bound by the increase and fluctuation of prices according to demand and supply specification which differ according to the supplier source and transportation problems. All these factors results in the increase of the production costs.

In view of the above-mentioned reasons, the national development plans stressed the increase in production of oil bearing seeds locally so as to minimize dependence on import. Importing value of these materials in 1969/1970 were (6.5) million dinar, increased to (12) million in 1974/1975 and in 1977, it amounted to (20) million I.D. These figures illustrate the importance of local production of raw materials locally for this industry; especially that

cultivation requirements are available in the country. The traditional crop is cotton and sesame, whose seeds are used to extract crude oil. However, this require the increase of cultivated land as well as the increase in the donoum productivity and to diversify the production of high rate of oil crops and the other oil crops which succeeded commercially in the country such as sunflower, linseed and saf flower.

Iraq is importing (50) thousand tons of seeds annually for oil extraction in addition to the seeds available locally. The land requited to provide sufficient quantities is about (6) million donoum in order to reach self reliance.

What the encourages the increase in producing oil crops inspite of the high costs of the requited agricultural projects is that vegetable oils are actually by-products for this industry, for the uses of protein materials (cakes) are numerous, such as human nutrition as well as meat producing cattle feeding.



