Distr.
LIMITED

ID/WG. 201/10
20 January 1975

ORIGNAL: ENGLISH

United Nations Industrial Development Organization

Regional Meeting on the Development of
Selected Branches of the Food Industry
in Selected Countries of the Middle East

Beirut, Lebanon, 2 - 8 March 1975

COUNTRY REPORT
ON
FATS AND OILS IN IRAQ 1/

by

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id.75-634

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1. Major Oil Seeds

The major oil seeds produced in Iraq are: Cotton, Sesame Sunflower, Linseed and Safflower.

As agricultural products, such seeds were never enough for the industry and the oil produced yearly from such seeds represented only 6-8 per cent of the annual oil and fat consumption in this country, the rest is produced from imported crude palm oil.

The highest quantities received were:

Cotton seed	24.273	Tons during 1973 bought at	29 I.D per ton
Sesame	3.108	Tons during 1973 bought at	110 I.D per ton
Sunflower	2.250	Tons during 1972 bought at	100 I.D per ton
Linseed	853	Tons during 1972 bought at	65 I.D per ton
Safflower	558	Tons during 1973 bought at	70 I.D per ton

The local cotton seeds normally contain 20-21 per cent oil and an average of 11-12 per cent protein, giving an expelled cake of 40-42 per cent pro-fat and an extracted meal containing 38-40 per cent pro-fat.

When received, the seeds contain 10-12 per cent lint and 8-12 per cent moisture. Storage is done in guni bags under "open-sided" sheds. Sesame is pale and of fair merchantile quality, but normally contains 16-18 per cent impurities (mostly sand). The clean seeds contain 48-50 per cent oil and 22-24 per cent protein.

Sunflower was lately introduced into this country and is of the "low oil bearing" type. Soya will be introduced next year (after the experimental 1974 crop).

The major part of the local linseed crop has always been exported due to better returns made by exporters on barter basis.

Official prices of local seeds to be bought by the General Company for Vegetable Oils during 1974:

Cotton	29	I.D	per ton
Sesame	110	I.D	per ton
Sunflower	100	I.D	per ton
Linseed	85	I.D	per ton
Safflower	70	I.D	per ton

Production of Oil-bearing seeds and quantities received by the industry:

Year	Total production Metric tons	Received by industry Metric tons
1968	49.745	18.135
1969	48.720	21.595
1970	47.975	23.080
1971	51.250	24.106
1972	49.965	26.882
1973	52.110	30.058
1974	expected 57.000	expected 36.500

The following average per cent of the total reported country crops (1968-1972) of oil bearing seeds were utilized by the oil and fat industry:

Cotton seeds	63 per cent
Sesame	13 per cent
Sunflower	72 per cent
Linseed	8 per cent
Safflower	81 per cent

2. The Five-Year Plan

The five-year plan which was suggested at the annual meeting of the Society of Iraqi Economist projects the following tonnages of seeds for our industry:

Type	1975	1976	1977	1978	1979
Cotton Seeds	23.940	25.550	28.500	31.500	34.000
Sesame	1.870	2.350	2.500	2.500	2.600
Sunflower	7.960	10.850	14.200	18.300	21.000
Linseed	1.530	1.950	2.800	4.600	6.300
Safflower	12.150	16.250	21.700	30.000	45.300
Soya	7.200	8.900	9.900	12.000	13.600

To increase the quantity of seeds utilized by our industry:

1) Sesame and linseed are to be strictly controlled and not allowed to be exported;

2) Cotton should all be ginned in governmental establishments so as to stop the mis-use of such seeds as cattle feed;

3) Cake and other seed by-products must be compounded and made available at a moderate price to users all over the country;

4) Collecting centres for industrial agricultural and food products must be established at locations close to farming areas.

3. Tables

Linseed

Cleaned Linseeds

- oil content, percentage by weight, min. 35
- moisture, percentage by weight, max. 5
- dirts and foreign matters, percentage by weight, max 5

Usage: boiled linseed oil

Packing: in jute bags about 70 kgs in capacity.

Sesame seeds

Cleaned Iraqi type sesame seeds:

- oil content, percentage by weight, min 53
- moisture, percentage by weight, max. 5
- dirts and foreign matters, percentage by weight, max 5

Usage: vegetable oils and fat products

Packing: in jute bags about 100 kgs in capacity

Groundnut /(Peanut)

Dried groundnut free from live insects and moulde

- oil content, percentage by weight, min. 45
- free fatty acid, as oleic acid, percentage by weight, max. 3
- moisture, percentage by weight, max. 5
- foreign matters, percentage by weight, max. 1

Usage: Vegetable oils and fat products
Packing: in jute bags about 50 kgs in capacity

Crude red palm oil

- plantation palm
- free fatty acid (as palmitic) percentage by weight, max. 5
- moisture and impurities, percentage by weight max. 1
- peroxide value, millimole active Oxygen/ kg sample, max. 10
- phosphatides as phosphorous, p.p.m., max 2
- iron as Fe, p.p.m. max 15

Usage: vegetable fat products
Packing: in bulk

Cotton seeds

- best quantity seeds unburned or shrinked
- oil content, percentage by weight, min. 19
- moisture, percentage by weight, max. 8

Usage: vegetable oils and fat products
Packing: in jute bags about 50 kgs in capacity

Sunflower seeds

- oil content, percentage by weight, min. 45
- free fatty acid, as oleic a acid in the
- moisture, percentage by weight, max. 5
- dirts and foreign matters, percentage by weight, max. 2

Usage: vegetable oils and fat products
Packing: in jute bags about 50 kgs in capacity

4. Operation of existing plants and the planned plants.

The General Company for Vegetable Oils process oil seeds in two of its four existing plants only; both are located in Baghdad. The total capacity is

50.000 tons of cotton seeds
and 20.000 tons of other seeds

A fifth plant (which is to be dedicated to the processing of oil bearing seeds only) is included in the coming five years development plan (1975 - 1979) and will have a capacityfor processing:

45.000 tons of cotton seeds/safflower
and 40.000 tons of other seeds

This plant will be comprised of two separate units and will be located at the centre of the oil seeds farming area approximately 220 km north of Baghdad. Since successful results have been obtained from the Baghdad "direct exfraction" of cotton seeds, the new unit will operate on the same principle. The second unit will be of the "pre-pressing and extraction of cake" system.

As can be seen from the afore mentioned figures, the overall plant efficiency for 1973 was only 43 per cent and will increase to 77 per cent in 1975.

Since all the oil seeds in Iraq produce liquid oils (semi-drying) and would only total to about 6.000 tons annually and since the market demand is 82.000 tons for this year, there is hardly any chance for export. Moreover, liquid oils are required for blending with palm oil during the winter season to produce a reasonable plastic product for cooking.

Refining of fats and oils is done in three plants, two in Baghdad and the third in Misan (400 km south of Baghdad). Total capacity is 90.000 tons/year and as can be seen from these figures, our only problem is raw materials, therefore, about 80 - 90thousand tons of crude palm oil are imported.

The local crude oils are refined chemically by the continuous method yielding 91-92 per cent finished product, 7-8 per cent soapstock, 0,6 per cent bleaching losses and 0.4 per cent washings.

50 per cent of the crude palm oil is refined chemically and the "Alfa-Laval Deorapid" unit maintains a yield of:

87 - 88 per cent finished product
11 - 12 per cent soapstock
0,7 per cent bleaching losses
0,3 per cent washings

The rest of the crude palm oil is physically refined by two "De-Smet" continuous units and one "Roce, Downs + Thomson" semi-continuous deodorizer, yielding:

93 - 94 per cent finished product
5 - 6 per cent distilled fatty acids
1 per cent pre-treatment losses

Such a situation does not create any problem as far as by-products are concerned, since our company sells 11.000 tons of laundry soap which requires 6.000 - 6.500 tons of fatty matter while the total stock produced by chemical refining of crude oils is 5.500 tons only. The distilled fatty acides produced by the physical refining method, are used after blending them with tallow and coconut oil or acids for "B" grade toilet soap base.

5. Cost of solid fat products.

The following table shows an average cost break-down of the major solid fat products (packed and ready for marketing) during 1973.

Item	in 16 kg tins	in 8kg tins	in 4 kg cans	in 1 kg can
Raw material	178.7	178.7	178.7	178.7
Process chemical additives, etc.	1.2	1.2	1.2	1.2
Manpower and services	3.1	3.3	3.4	3.8
Depr. and maintenance	1.8	1.8	1.8	1.8
Utilities, etc.	0.4	0.4	0.5	0.5
Management Stores, marketing and dist.	6.9	6.9	6.9	6.9
Packing Material	14.2	18.9	29.2	37.2
Tax	10.0	10.0	10.0	10.0
Total	216.3	221.2	231.7	240.1

N.B.: The cost of raw material (189.7 I.D) includes (19.5 I.D) customs, port and other duties.

Since the majority of local consumption is solid fat (similar to vanaspati) the ghee blend in the summer would be 100 per cent palm oil, part of which is hardened. The consumption is at its lowest level during this season due to food habits.

The winter composition of the ghee is 10 - 20 per cent liquid oil plus 80 - 90 per cent palm oil, giving a plastic product during the cold days when the consumption is at its highest peak. This phenomenon holds true due to the high differential in temperature (about 35°C differance) between the two seasons.

6. Consumption of oils and fats.

Actual and expected sales of fats and oils (tons)

Year	Solid fats	Oil	Total	Per Capita. C.R.
1969	55599	1139	56.738	6.2
1970	60259	1324	61.583	6.5
1971	71974	2039	74.013	7.6
1972	71848	2241	74.089	7.3
1973	78458	1838	80.296	7.7
expected				
1974	82000	2200	84.000	7.8
1975	85300	2800	88.100	7.9
1976	88500	3100	91.600	8.0
1977	92700	3500	96.200	8.1
1978	95200	4100	99.300	8.1
1979	97500	4500	102.000	8.1

Per Capita consumption rate = kgs person/year

Per Capita consumption rate = kgs person/year

Year	Fats	Oil	Total
1969	55.733	1.109	56.842
1970	60.174	1.487	61.661
1971	80.455	2.843	83.298
1972	69.611	1.693	71.304
1973	75.259	2.010	77.269

As seen from the figures listed in this report, the new oil seed processing plant should be in operating condition during the last quarter of 1977.

The expansion of one of the oil refining plants in Baghdad is a must in 1976. Most probably, a refining unit installed in the new oil seed processing plant is the best choice for 1979 at a capacity of at least 15.000 tons annually.

7. Tables

Nerges Brand

Product: Shortening

Composition:

Winter	100-80%	palm oil
	0-20%	soft oil (groundnut, sesame, cotton, sunflower, etc.)
	0.0001%	chlorophyll
Spring and Autumn	100%	palm oil
	0.0001%	chlorophyll
Summer	100-85%	palm oil
	0-15%	hardened palm oil
	0.0001%	chlorophyll

Specifications:

- %FFA, as oleoic acid, max.		0.30
- Slip-melting point, °C		36-44 (depending on season)
- Colour, of molten oil, in $5\frac{1}{4}$" cell		2.5-4.4 R
	on the lovibond scale	25-45 Y

Standard Packing:

1 kg	tin - 12 tins/fibrite
4 kgs	tin - 6 tins/fibrite
8 kgs	tin
16 kgs	tin

Change from previous formula: %FFA, max. 0.24

Shepherd (ordinary) Brand

Product: Shortening

Composition:

Winter	100-80%	palm oil
	0-20%	soft oil (groundnut, sesame, cotton sunflower , etc.)
	3 ppm	bush red H 7198
	6 ppm	oil yellow XP

Spring and Autumn	100% palm oil 3 ppm bush red H 7198 6 ppm oil yellow XP
Summer	100–85% palm oil 0–15% hardened palm oil 3 ppm bush red H 7198 6 ppm oil yellow XP

Specifications:

- %FFA, as oleic acid, max.	0.30
- Slip-melting point, °C	36–44 (depending on season)
- Colour, of molten oil, in 5¼" cell on the lovibond scale	4.5–5.5 R 45–55 Y

Change from previous formula: %FFA, max. 0.24

Standard Packing:
1 kg tin - 12 tins/fibrite
4 kgs tin - 6 tins/fibrite
8 kgs tin
16 kgs tin

Shepherd (Basra) Brand

Product: Shortening

Composition:

Winter	100–80% palm oil 0–20% soft oil (groundnut, sesame, cotton, sunflower, etc.) 6 ppm bush red H 7198 12 ppm oil yellow XP
Spring and Autumn	100 % palm oil 6 ppm bush red H 7198 12 ppm oil yellow XP
Summer	100–85% palm oil 0–15% hardened palm oil 6 ppm bush red H 7198 12 ppm oil yellow XP

Specifications:

- %FFA, as oleic acid, max.	0.30
- Slip-melting point, °C	36–44 (depending on season)
- Colour, of molten oil in 5¼" cell on the lovibond scale	6.0–7.0 R 60 –70 Y

Standard Packing: 1 kg tin - 12 tins/fibrite
4 kgs tin - 6 tins/fibrite
8 kgs tin
16 kgs tin

Change from previous formula: %FFA, max. 0.24

Zobeida (ordinary) Brand

Product: Shortening

Composition:

Winter	100-80% palm oil 0-20% soft oil (groundnut, sesame, cotton, sunflower, etc.) 10 ppm bush red H 7198
Spring and Autumn	100% palm oil 10 ppm bush red H 7198
Summer	100-85% palm oil 0-15% hardened palm oil 10 ppm bush red H 7198

Specifications:

- %FFA, as oleic acid, max.		0.30
- Slip-melting point, °C		36-44 (depending on season)
- Colour, of molten oil, in 1" cell on the lovibond scale		1.8-2.2 R
		24-30 Y

Standard Packing: 1 kg tin - 12 tins/fibrite
4 kgs tin - 6 tins/fibrite
8 kgs tin
16 kgs tin

Change from previous formula: %FFA, max. 024

Composition: 67-20% palm oil
33-80% hardened palm oil
Summer 300 ppm Ghee flavour
5 ppm lemon yellow 6660

Zobeida (Basra) Brand

Product: Shortening

Composition:

Winter	100-80% palm oil 0-20% soft oil (groundnut, sesame, cotton, sunflower, etc.) 25 ppm bush red 6660 5 ppm bush red 7005
Spring and Autumn	100% palm oil 25 ppm bush red 6660 5 ppm bush red 7005
Summer	100-85% palm oil 0-15% hardened palm oil 25 ppm bush red 6660 5 ppm bush red 7005

Specifications:

- %FFA, as oleic acid, max.	0.30
- Slip-melting point, °C	36-44 (depending on season)
- Colour, of molten oil, in 1" cell on the lovibond scale	1.5-2.1 R 34-40 Y

Standard Packing: 1 kg tin - 12 tins/fibrite
4 kgs tin - 6 tins/fibrite
8 kgs tin
16 kgs tin

Change from previous formula: %FFA, max. 0.24

Composition:

Summer	67-20% palm 33-80% hardened palm oil 300 ppm Ghee flavour 5 ppm lemon yellow 6660

Zeinab Brand

Product: Shortening

Composition:

Winter	100-80% palm oil 0-20% soft oil (groundnut, sesame, cotton, sunflower etc.)

Winter	300 ppm Ghee flavour 5 ppm lemon yellow 6660
Spring and Autumn	100% palm oil 300 ppm Ghee flavour 5 ppm lemon yellow 6660
Summer	100-85% palm oil 0-15% hardened palm oil 300 ppm Ghee flavour 5 ppm lemon yellow 6660

Specifications:

- %FFA, as oleic acid, max.	0.30
- Slip-melting point, °C	36-44 (depending on season)
- Colour, of molten oil, in 1" cell on the lovibond scale	1.2-1.6 R 14-18 Y

Standard Packing: 1 kg tin - 12 tins/fibrite
4 kgs tin - 6 tins/fibrite
8 kgs tin
16 kgs tin

Change from previous formula: %FFA, max. 0.24

Composition:

	67-20% palm oil
	33-80% hardened palm oil
Summer	300 ppm Ghee flavour
	5 ppm lemon yellow 6660

Zeit el Bint Brand

Product: Cooking Oil

Composition: 100% pure soft oil (cotton, sesame, groundnut, etc.)

Specifications:

- %FFA as oleic acid max.	0.3
- Colour in a 1" cell on the lovibond scale	0.8-1.2 R 8-12 Y

Standard Packing: 1 kg tin - 12 tins/fibrite
16 kgs tin

Change from previous formula: %FFA max. 0.24

Oil of maize (corn)

Product: Hygenic all purpose oil

Composition: 100% pure corn oil

Specifications:

- %FFA, as oleic acid max.	0.3
- Colour in a 1" cell on the lovibond scale	0.8-1.2 R 8-12 Y

Standard Packing:

1 kg tin - 12 tins/fibrite

Change from previous formula:

Boiled linseed oil

Product: Varnish

Composition:

	%
- boiled linseed oil	98.2
- Lead Naphthanate	0.5
- Manganese Naphthanate	0.3
- Rosin W.W.	1.0
	100.0

Specifications:

- Flow rate, red wood No.1 viscometer	10-14 minute
- Colour, in 1" cell on the lovibond scale	4.0-6.0 R 25-35

Standard Packing:

16 kgs tin

Change from previous formula: