

CHAPTER II

HISTORY AND IMPORTANCE OF THE OIL PALM INDUSTRY

History and Growth of the Malayan Oil Palm Industry

This crop is of relatively recent introduction into the country but has proved ideally suited to the local conditions and has produced yields which are among the highest obtained in the world. The industry has experienced a tremendous growth since its initiation about nine decades ago. The earliest reports on oil palm growth in Malaya was in 1870 when the oil palm seeds were being sent from Netherlands Indies (now Indonesia) to the island of Singapore. Many species of seeds were introduced but these consisted mainly of the "Deli Palm" and the "Elaeis Guinaensis".

Within this span of about ninety years, the oil palm industry has attained a record of remarkable development both in acreage planted as well as in the scientific methods of the cultivation of the palm and the preparation for the market of its 2 main products - the palm oil and the palm kernel. The remarkable progress of the industry may be accounted for by the fact that from the start the planter has looked towards the scientist for scientific aid and towards the engineer for help and guidance. Furthermore the opening up of various research stations such as those at Serdang and Batu Tiga accelerated the rapid development of the industry.

Perhaps, the first notable advance was found in the engineering field. Originally the areas where oil palm was planted were very small units and most of the machinery were therefore adapted to suit such small areas. Most planters who tried to enlarge their acreage in the estates found that their machinery were not suitable to the large areas of land. This was solved when the engineering firms produced larger types of machinery which suited the cultivation of larger estates of almost any area above 200 acres

In the sphere of scientific research the industry can pay thanks to the fact that for some years factory techniques were being studied by scientific officers and the planters themselves. The combined efforts of the factory scientist and the planter have also led to the production of a very highly scientific product.

In field work, the industry had the advantage of possessing managers with much experience of planting and managing rubber and coconut

estates so that the organisation of this type of work presented few difficulties to them.

(a) As a Government Crop:

Oil palm was first introduced as a Government crop. The then Malayan Government (F.M.S., non F.M.S. & Straits Settlements) experimented with the cultivation of the seeds. The experimental station at Batu Tiga, Selangor, was the first venue of experiment. In the early 1900's about 35 six year old *palms were reported as growing at the Batu Tiga Experimental Station. In 1905, the Department of Agriculture was formed and more seeds were planted by this department especially at the Public Gardens, Kuala Lumpur. These seeds were of unknown origin but are suspected to be of the "Deli" type. In 1908, seeds from Nigeria were also being planted in the Public Gardens, Kuala Lumpur.

By 1910 the Batu Tiga Experimental station proved to be unsatisfactory due to the growing intensity of malaria. Thus concentration was shifted towards the Experimental Station in Kuala Lumpur. In 1922, the Experimental Station in Kuala Lumpur gave way to a better site at Serdang, Selangor, which became the new experimental station.

The government and the Department of Agriculture have done much to promote the oil palm industry in Malaya. Their keen interest on disease control, on improving the quality of the palms and the yield of the trees as well as in providing for better processing methods of the products of palm oil and palm kernels, has made them the forerunners of the oil palm industry of the country.

(b) As a Commercial Crop:

The various agency houses in the pre-war and post-war periods (i.e. the 1939 - 1945 war) have also done a great deal to enhance the development of the industry. In the early 1900's the favourable prices of both palm oil and palm kernels encouraged the cultivation of oil palm on a commercial scale. The increase in demand of the oil and the discovery of new uses enhanced the need for a commercial oil palm industry. Furthermore, the various factory techniques and scientific discoveries studied by the government research units made production for the commercial planters much easier. The many advantages of

palm oil over coconut oil both in the manufacturing sphere as well as the edible oil sphere enabled the industry to a great start as a commercial crop.

The earliest signs of commercial oil palm development was in the year 1911 when M. Henry Fauconnier opened an oil palm estate near Batang Berjuntai, Kuala Selangor. The seeds were planted in the Kantau Panjang Rubber Estate where rubber was the main crop then. The seeds (of unknown origin) were bought from Sumatra. However the palms that were planted were done only on a small scale and it can hardly be called a commercial method of planting.

By 1917 seedlings were being planted at Tennamaram Estate by M. Parant, a close relation of Henry Fauconnier. The cultivation of the seeds started after the failure of a coffee experiment that took place earlier. Thus with the growth of the oil palm on a fairly large scale, the Tennamaram Estate became the first commercial oil palm estate in Malaya. In 1919 another oil palm estate was established. The Elmina Estate as it was known planted 40 acres with oil palm seeds in 1920, 570 acres from 1920 - 1922 and had a total acreage of 1,010 acres by the end of 1923. Originally the property of an ex-serviceman it later went into the possession of the Selang Oil Palms Co. Ltd., in 1924. Most of the palms in this estate were of the "Deli" type. In the same year (1924) about 50,000 seeds were purchased from Sumatra. From 1929 - 1940, the Department of Agriculture initiated further work on the Elmina Estate.

The post war period of 1945 saw the oil palm industry regaining its strength which was hindered by the inter war period of 1939 - 1945. New areas were opened up and with the aid of the government the agency houses started to plant oil palm on an even larger scale. Production increased, export figures increased and the total acreage increased. The agency houses such as Guthries Malaya Ltd., Socfin, and Harrisons and Crossfields became the leading producers of the oil.

As a commercial crop, the oil palm is mainly planted on the estate. This is so since high overhead costs are involved in the installation of the processing equipment and transport facilities. Thus this crop is not suitable as a smallholders' crop. However with organised harvesting and processing there is no reason why it should not become a profitable smallholders' crop. Such organisation is now being brought about through government sponsored land development schemes. The chief body for

such organisation is the Federal and Land Development Authority (FLDA).

(c) Conclusion:

We therefore see that the oil palm has attained a fantastic rate of growth within so short a period of time. It is now a very stable crop and the advantage it has over the other crops makes it face a very good future.

Description of the Palm and its Fruit

The palm is very much similar to the coconut palm in appearance but is much shorter and has a thicker and more perpendicular trunk, on which the leaf bases remain a very rough pattern for about 20 years. The fruits are borne in bunches and an average bunch weighs between 15 - 30 katis. A mature bunch consists of about 500 or more fruits, each about 1 inch in diameter and $1\frac{1}{2}$ inches in length. A fully ripe fruit comprises of the following:-

1. a reddish coloured outer skin
2. a dark orange coloured layer of fibrous oily pulp below the outer skin (called Pericarp) which contains the palm oil.
3. a hard nut (called Endo carp) within the Pericarp which contains the palm kernel (which itself is very hard) and needs crushing to extract the palm kernel oil.

Thus the products from the fruit of the oil palm are called 1) palm oil 2) palm kernels. The contents of each bunch of fruit (referred to as Fresh Fruit Bunches or F.F.B.) after processing contains the following.

1. Palm oil	16%	-	by weight
2. Palm Kernel	4%	-	"
3. Fibre, shell and waste water	80%	-	"

The above figures are only a rough approximation and the percentage figures of palm oil and palm kernel rises with improved breeding of seeds.

The palms grown in Malaya are not indigenous to the country but are of African origin. Three main strains of palms can be distinguished. Numerous crosses have been carried out from these three palms and have been planted in Malaya. The three main palms are:-

1. Deli Dura
2. Pisifera
3. Tenera (result of crossing (1) x (2))

The object of breeding is to obtain high yielding palms which are easily harvested, resistant to disease and capable of being grown on all soils. This means that breeding of the palm is aimed at achieving the following:-

1. a thick oil bearing Pericarp
2. a thick shell easy to break
3. a big kernel containing more oil
4. a short palm which is easier to harvest

The yields of different palms vary. The Tenera palms seems to bring in the highest yields while the Deli Dura palms fetch the lowest yields. The approximate yields of the 3 palms are shown in Table 2-1.

TABLE 2-1

YIELDS OF OIL PALM OF DIFFERENT BREEDS

Palm	Ton of Palm Oil Per Acre Per Annum
Deli Dura	$\frac{3}{4}$
Pisifera	$1\frac{1}{4}$
Tenera	$1\frac{3}{4}$

The Importance of the Oil Palm Industry

a) Land Use:

The oil palm areas are concentrated along the west coast states of Johore, Selangor and Perak. The largest areas are in Johore (58,929 acres) followed by Selangor (40,707 acres) and Perak (24,059 acres). These three states account for about 95% of Malaya's total oil palm acreage. With reference to table 2-2 it is seen that there are about 153,000 acres of oil palm and in terms of acreage it ranks the fourth most important agricultural crop. In 1962, there were about 3,987,000 acres of rubber land, 966 acres of rice land and 510 acres of coconut land. Thus for every 26 acres of rubber land, 53 acres of rice land and 3.3 acres of coconut land there was one acre of oil palm.

TABLE 2-2

ESTIMATED CULTIVATED AREA UNDER CROPS: FEDERATION OF MALAYA

(in '000 acres)

Crop	1948	1955	1961	1962
Rubber	3,535	3,665	3,923	3,987
Rice	885	891	953	966
Coconut	511	517	510	510
Palm Oil	83	111	141	153
Tea	10	9	9	9
Other crops	390	395	453	474

Source: Monthly Statistical Bulletin - March 1964. Tables 2-2 pp.15.

The majority of the oil palm areas are under estates and in fact there are very few small holders who grow oil palm. This is so because an oil palm plantation requires a large and expensive factory to extract and process the oil and kernels from the fruit bunches. Thus smallholders lack the available capital to finance such expensive machinery. But from 1961 - 1963 about 10,000 acres were planted by smallholders with the aid of the Federal Land Development Authority (FLDA) under its various oil palm schemes to promote rural development.

b) Employment:

The oil palm industry has provided employment for 13,221 persons in 1957, about 2,000 workers more than that of 1947. This makes it the fourth largest source of employment in agriculture. Table 2-3 gives a very comprehensive report of employment for all agricultural products.

TABLE 2-3

AGRICULTURAL EMPLOYMENT (IN PERSONS)

Crop	1947	1957	1963 (estimate)
Rubber	509,436*	614,487	n.a.
Rice	470,692	398,295	n.a.
Coconut	39,519	39,739	n.a.
Oil Palm	11,158	13,221	17,400
Tea	(not available)	4,300	4,400

Total economically active population - 2126000 (1957 census)

Source: Official Year Book - Fed. of Malaya 1961

Statistical Bulletin March 1964 p. 133.

In 1957, the workers employed in the oil palm industry consisted of 0.6% of the total economically active population. Compared to the other agricultural industries rubber employed 28.9% rice employed 18.7% and coconut employed 1.9%. Thus for every person employed in the oil palm industry there was approximately 3 persons in the coconut industry, 31 persons in the rice industry and 48 persons in the rubber industry.

c) Value of Exports

Palm oil products form the fourth largest item of exports of domestic produce as indicated in Table 2-4 ranking only after rubber, tin and iron ore. In 1963 the value of the export of oil palm products amounted to 76 million. This amount was approximately 2.8% of the value of exports of that year.

The value of exports of oil palm products have been very stable for the past 5 years from 1959 - 1963. The figures in table 2-4 show only a very slight change in the value of exports in the years 1961, 1962 and 1963. Thus with the stability of the value of exports and the general trend in the increase in value of the exports, it can be assured that the oil palm industry would be of a great help to the economy.

Competition It Faces

a) Competition from other Producing Countries

In 1960 Malaya produced about 16% of the world's palm oil. She is also the fourth producer in terms of exports. Other main producers are Nigeria, Congo and Indonesia. Table 2-5 shows the world production of palm oil by countries.

TABLE 2-4

GROSS EXPORTS OF DOMESTIC PRODUCE, 1958, 1959 AND 1960

(in \$ million)

Domestic Produce	1958	1959	1960	1961	1962	1963	1963 %
Rubber	1,197	1,722	1,829	1,442	1,368	1,374	51
Tin	275	299	507	553	620	642	23.5
Coconut products	48	43	58	47	31	35	1.3
Palm Oil andKernels	61	72	72	68	72	76	2.8
Timber	32	33	55	40	47	63	2.4
Iron ore	63	100	140	164	166	176	6.6
Pineapples	27	24	28	29	31	33	1.2
All other exports	179	180	235	279	286	300	11.2
Total	1,882	2,473	2,924	2,622	2,621	2,699	100

Source: Monthly Statistical Bulletin of the States of Malaya - March 1964.
 Department of Stats.
 Table 1.1 - 1.8 pp. 89-92

TABLE 2-5

WORLD PRODUCTION OF PALM OIL

(in '000 tons)

Country	Actual Annual Average			1960 Percentage
	1934-38	1952	1960	of Total
Nigeria	137	170	183	32
British W. Africa	2	1	-	-
Congo	60	146	165	29
French Africa	37	15	12	2
Port Africa	5	15	13	2
Liberia	1	3	-	-
Indonesia	171	126	107	19
Malaya	34	47	90	16
Total	447	523	570	100

Source: Journal of Tropical Geography Vol.17 p.129

In 1956 the Food and Agricultural Organisation (FAO) estimated that world fat consumption was about 35 million tons of fat. In that year only 24 million tons of fat were actually produced and consumed. Thus the world still needs an increase of 11 million tons or a 50% increase in the production of fats. Thus Malaya even though she is not the largest producer of palm oil will have no fear of a fall in the demand of oil.

The yields achieved from the Malayan estates are many times more than the yields achieved in the other countries. For example, the average yield of oil per acre of oil palm per annum in Malaya is about 1.2 tons. The yields achieved in the African countries are only about half that achieved in Malaya. It is about 0.6 tons per acre per annum. This is due to Malaya's advanced methods of cultivation through large plantations and the high rates of extraction of oil. On the contrary the African countries plant oil palm on a smallholder scale and therefore expected yields from such areas cannot be high. Furthermore better palms have been introduced in Malaya. These are the Tenera and the Pisifera palms which brings in an average annual yield of 1.2 tons of oil per acre.

b) Competition from other Oil Producing Plants

Oil palm has a much greater efficiency of oil production over other oil producing plants. Table 2-6 gives the yields of 6 different crops.

TABLE 2-6
ANNUAL YIELD OF OIL FROM VARIOUS CROPS
(lbs/acre)

Crop	Yield
Oil Palm	2,230 - 3,569
Coconut	535 - 1,338
Olive	446 - 898
Sesame	303 - 898
Groundnuts	303 - 393
Soya beans	205 - 357

Source: Journal of Tropical Geography Vol. 17. p.128

We can see the much greater efficiency of oil palm in table 2-6. The oil palm has a yield 3-4 times more than that of its nearest rival - the coconut palm. Thus with this advantage it can face any form of competition imposed by the other oil producing crops.

Figure 2-1 gives a graphical representation of the productive efficiencies of the oil palm and the coconut palm. The oil palm has a production rate of about 3 times that of the coconut palm and more than 3 times that of other crops.

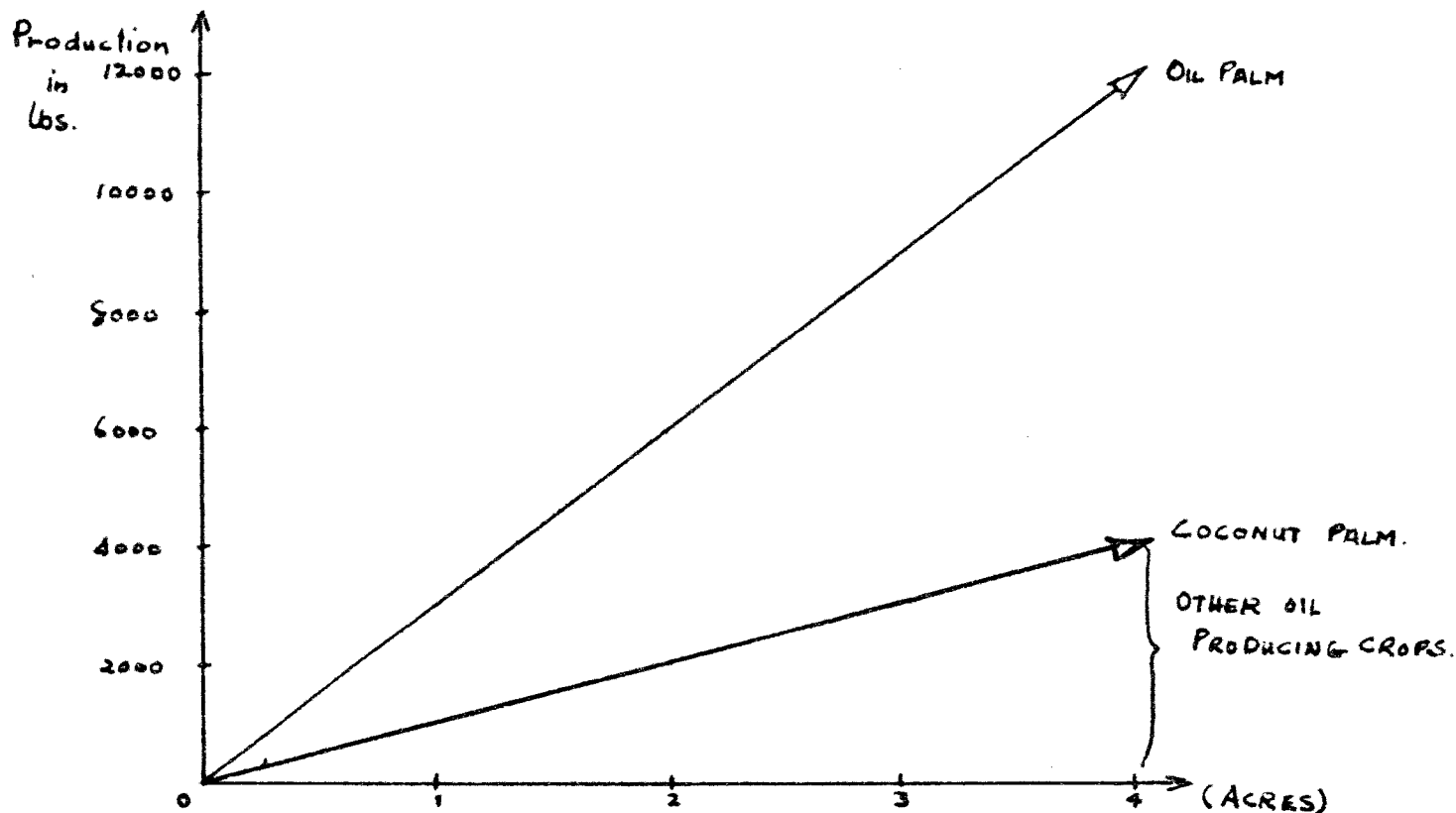


FIGURE 2-1: THE PRODUCTIVE EFFICIENCIES OF OIL YIELDING CROPS.

Another feature of oil palm's advantage over the other producing plants is that it is more closely related chemically to the animal fats than any other vegetable oil. As a hard vegetable oil it has more saturated fatty acids and therefore is very similar to the animal fats. Table 2-7 shows the percentage of saturated and unsaturated fatty acids of animal and vegetable fats.

TABLE 2-7

TYPES OF FATTY ACIDS FOUND ON ANIMAL AND VEGETABLE OILS

Type of OIL	Percentage of Fatty Acid	
	Saturated	Unsaturated
Butter	55	45
Lard	42	58
Palm OIL	48	52
Coconut Oil	92	8
Olive Oil	12	88
Soya Oil	13	87

The above table shows that palm oil, Lard and Butter have about the same percentage of saturated fatty acids. On the contrary the coconut oil has more saturated fatty acids while the olive oil has less saturated fatty acids.

c) Competition from Animal and Marine Oils

Animal fat is relatively more costly to produce than palm oil. In the United States of America, the government keeps the prices of animal fats down by giving subsidies to the animal fat producers. But without these subsidies animal fat would not be so competitive.

The output of marine oils is dependent upon the whale population. Unless the catch is limited, the population of whales would decline. There is more or less a constant catch of whales in the marine oil industry. Thus production of marine oils is constant. An expansion in production in this field is therefore unlikely.

d) Competition from Synthetics

In the field of soap and detergent production, the natural oils faces keen competition from Synthetics. In 1956, about 50% of soaps and detergents in the U.S.A. were manufactured from synthetics. However this is only in the field of soap manufactures and not in the field of edible oils. Under edible oils, the synthetics do not pose any problem since the finest flavours come from natural oils.

