

CHAPTER V

FUTURE OF THE OIL PALM INDUSTRY

Future Production

(a) Yields

The future yield of oil palm is expected to be around 2 tons per acre to 2.5 tons per acre. At present the Deli Dura palms only average around 1 ton per acre. With increased scientific research and experiments it is expected that the oil palm will yield around 2 palms at the age of maturity i.e. when it is about 10 years old. Malaya at present has one of the highest yielding palms. These palms are the result of proper breeding by the experimental stations. The main palms of highest yields are the Pisifera Palm and the Tenera Palm. The average yields of these palms can be seen in Table 2-1 (pp.7)

(b) Acreage:

From present trends, the acreage of oil palm is expected to increase tremendously. With the dying coconut industry and the unfavourable prices of rubber, there is a strong tendency for the estate owners to shift to the cultivation of oil palm which is a more profitable tree crop. The acreage to be planted in the future depends on factors such as the availability of land, the prices of palm oil and palm kernel and the willingness of the present rubber estate owners to switch to the cultivation of oil palm. The present government's diversification policy may bring about a greater acreage of oil palm. Malaya's dependence on rubber exports in the past has made the economy rather unstable. The relative stability in the prices of oil palm products could make the oil palm a very profitable tree crop both from the viewpoint of the producers as well as from the viewpoint of the economy. The addition of the Borneo territories which have plans to plant oil palm will also increase the oil palm acreage. The areas of Sabah and Sarawak have been found to have suitable soils and plans have been made by the Commonwealth Development Corporation to initiate the opening up of oil palm planting in these areas.

The Federal Land Development Authority schemes will also bring about an increase in the acreage planted. The increase in smallholders oil palm areas would mean the attainment of at least part of the objective of diversification. It would also add to making the oil palm industry gain a firmer footing in the Malayan economy.

Oil palm has been recommended as a crop which would enable the country to rely less on rubber. The World Bank Mission Report of 1955 as well as the Federation 2nd 5-year plan have mentioned the need for economic diversification and has recommended oil palm as one of the main crops for agricultural diversification.

Thus these encouraging factors would no doubt increase the acreage of oil palms in the country. The increase would mean that the country's oil palm industry would be in a stronger position. Increases in acreage now would result in a greater production of palm oil and palm kernels in the future. Thus it is in actual fact a form of investment to the Malayan economy if the oil palm acreages are increased now.

A forecast into the future years' increase in oil palm acreages is rather difficult. However if present plans are carried out it is estimated that by 1970, the country would have a total acreage of about 200,000 acres. This would largely be the result of increases in smallholding areas carried out with the help of the F.L.D.A. Another reason is that if present rubber prices and palm oil prices are maintained the present estate owners would prefer to switch to oil palm cultivation which will bring about a greater net return on investment than to replant the old rubber trees.

(c) Production Outlook in the Future

(i) Palm Oil

Future output of palm oil will depend on factors such as price, yields, acreage, factory methods, and political stability. A stable government is a very important prerequisite if future production of palm oil is to be expanded. At present, the political confrontation presented by Indonesia poses a question of doubt as to the future of the industry. However, if we left such factors out and consider them as constants we can project into future production by the use of trend figures.

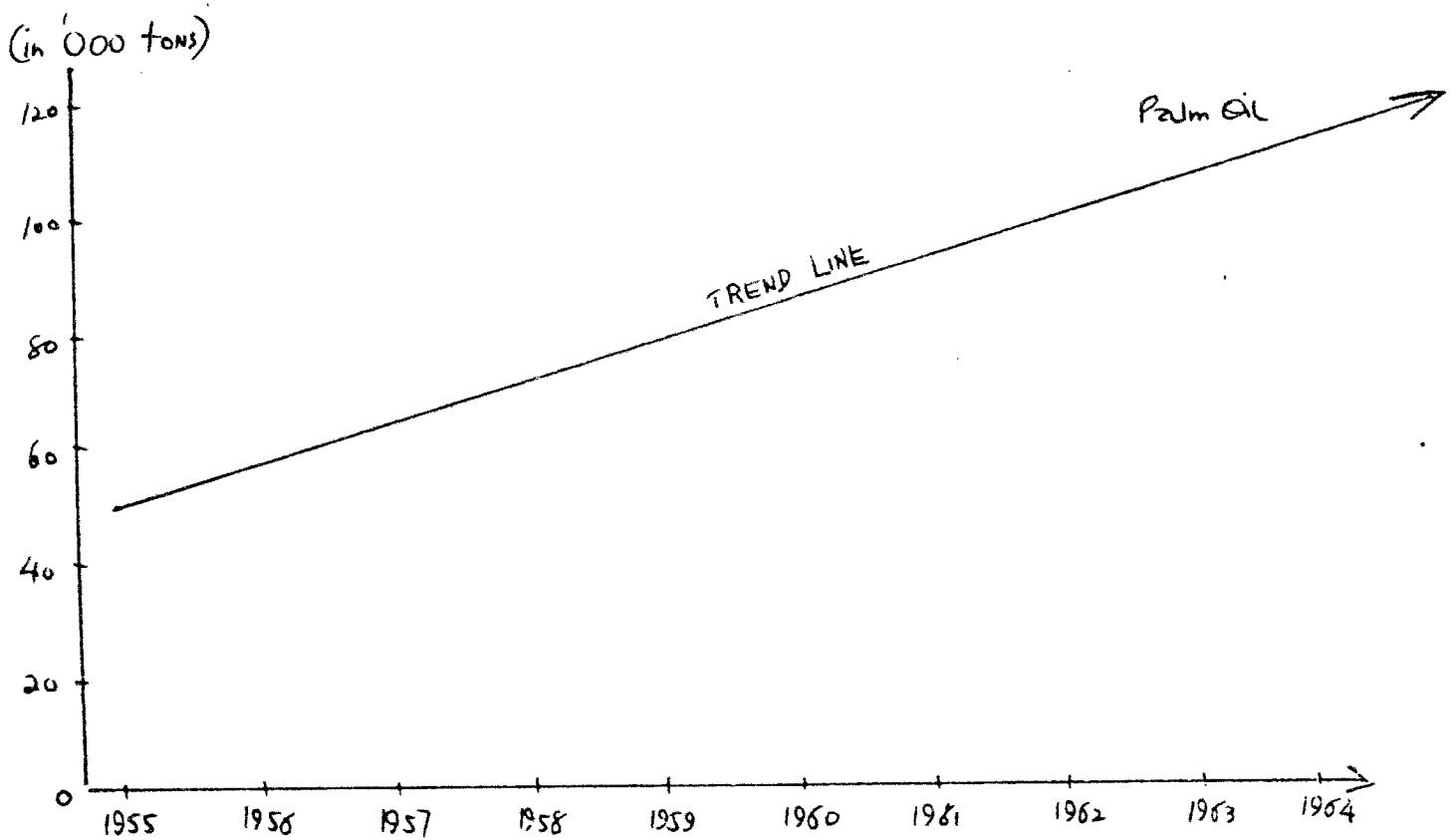


DIAGRAM 5-1: TREND OF PALM OIL PRODUCTION

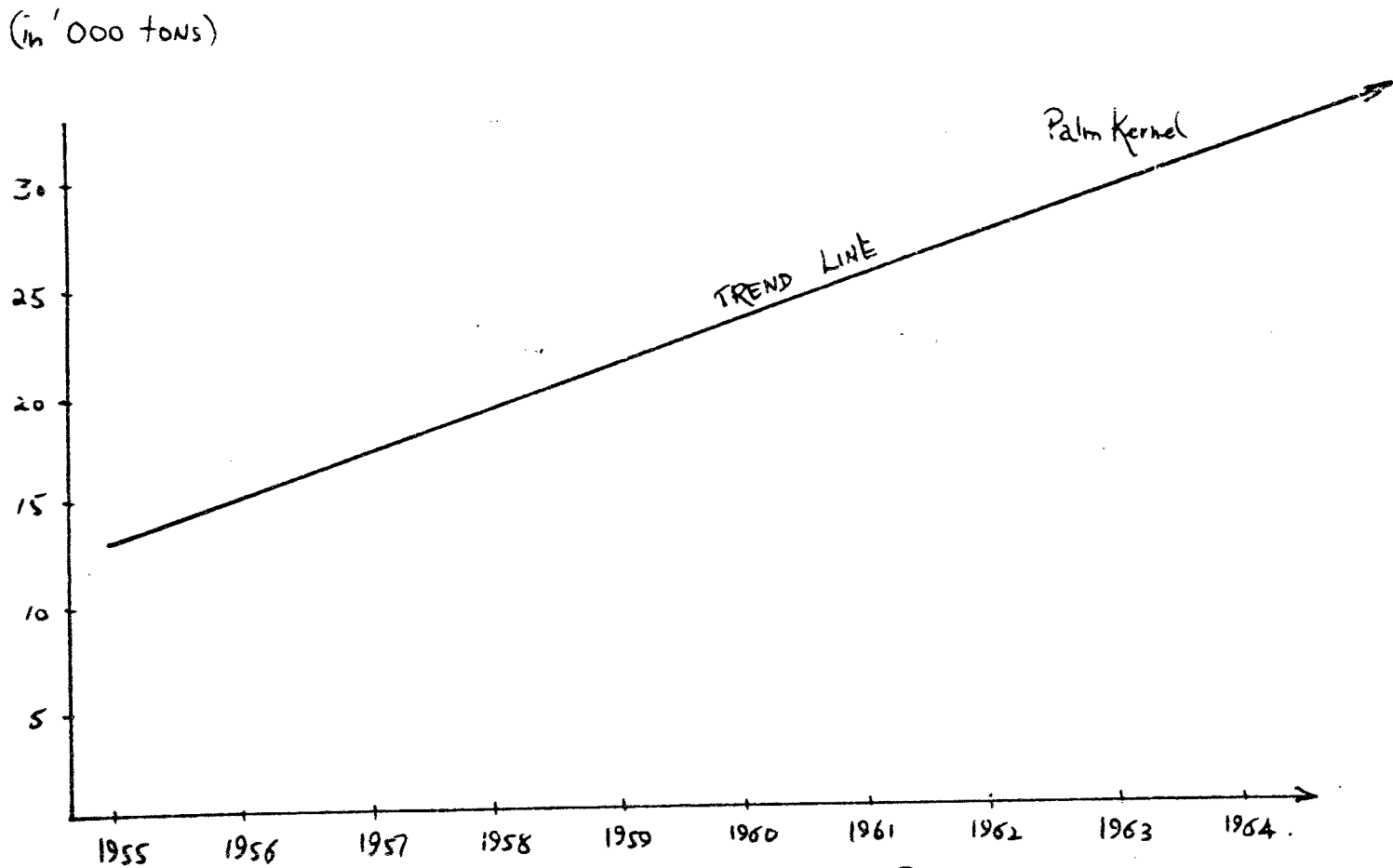


DIAGRAM 5-2: TREND OF PALM KERNEL PRODUCTION

In this analysis the trend of production is based on the years 1955 - 1963. Linear trends are based on such figures as is shown in Appendix 2. Diagram 5-1 shows the trend of palm oil production based on the calculations in Appendix 2.

The trend figures ignore such variables as prices, yields, acreage and the like. Once such variables are included, the whole analysis of projection would become complicated. Thus it is assumed that the prices, yields etc. do not affect the output of future years. ^{Hence, the calculation and projection for future years} is made much easier. Thus for example in 1970, the output according to the linear trend would be approximately 160,000 tons. This figure might be greater or smaller depending upon the extent of interference by other variables.

(ii) Palm Kernel

The factors that affect palm oil production, also affect palm kernel production. In fact, palm kernel production is very strongly correlated with palm oil production. This is so since palm kernels are a by-product of palm oil. They are the residue of the fruit from which the oil has been extracted.

The method of projection for future production of palm kernels is very much the same as for that of palm oil. The method of linear trend is used. Here again, the trend calculations ignore variables such as price or yields. All that has been accounted for is the past years' production figures. The calculations for the trend figures are shown in Appendix 3. Diagram 5-2 shows the trend based on the calculations as shown in Appendix 3.

The trend figures as shown in diagram 5-2 ignore price or yield variables. Thus the figures shown are more or less "superficial". They might vary according to the other variables if such variables are taken into account.

The trend figures show that for the year 1970, the output of palm kernels would approximately be 43,000 tons. This would almost be double that of the 1960 figure which is 24,000 tons.

(d) Correlation of Future Palm Oil and Future Palm Kernel Production

There seems to be a strong correlation in the rate of increase of palm oil and palm kernel production in the future years. Palm oil production according to the trend shows an annual increase of approximately 7,000 tons. Palm kernel production shows an annual increase of 2,000 tons. Comparing the rate of increase of these two products it is seen that according to the

1955 production^{figure.} the rate of increase for palm oil is 12½% and the rate of increase for palm kernel is 13%. Similarly if the 1960 production figure was taken, the rate of increase for palm oil and palm kernel would be 8% for both products.

This therefore shows that palm oil and palm kernel production increase at approximately the same rate. Hence, whenever there is an increase in the palm oil output, it can also be expected that there will be a same rate of increase in the palm kernel output. The calculations for the rate of increase based on the years 1955 and 1960 are given in Appendix 4.

Future Consumption

Trends were used as a basis for projection of future years' production. The method employed in projecting future demand is based on two factors. Firstly there is the population factor. Secondly there is the income factor. These two factors will determine the future consumption of oil in general.

It is expected that there will be a rapid increase in population in the less industrialised countries. For example, the population in 1970 of the countries of Asia, Africa and Latin America is expected to increase by 60% if based on the 1960 population figure. In the more industrialised countries of Europe and North America, the expected rate of increase for the same time period is only 30%. These expected increases in total population of the world is bound to set off an increase in the demand for the consumption of oil and fats. Hence there will also be an increase in the demand for palm oil and palm kernels.

The factor of income takes the form of "the income elasticity of demand". It is expected that there will be a high income elasticity of demand for oils and fats. Increases in income are expected to be followed by a proportionately greater increase in the demand for oils and fats. This income elasticity of demand is especially high in the low-income countries.

These two factors will ensure that there will be an increase in the demand for oils in general. Thus the expected increase in the output of oils will be met by an expected increase in the demand for oils. Hence there will be no over production of oils.

The factors discussed above are in relation to oils and fats in general. Coming down to oil palm products, many other factors do affect the demand for the products. Such factors are price, substitutes and the use of the products. If palm oil prices are expected to be high

in relation to other fats and oils, it can be rationally concluded that the demand for palm oil would fall if other things remained constant. The reverse would be true if palm oil prices are expected to be low in relation to the prices of other fats and oils. Substitutes would obviously affect the demand for palm oil and palm kernels. If the market for oils is being saturated with other oils such as marine and animal oils, it can be expected that the demand for palm oil and palm kernels would drop. The presence of synthetics in the oil market will also affect the demand for palm oil. This is especially true in the case of the soap manufacturing industry. Finally, another factor that would cause a change in the demand for palm oil and palm kernels is the "use" made from these products. If there are more uses to these products, then the demand would be expected to increase.

Hence it can be seen that other than such long term factors as population growth and the income elasticity of demand for oils, other factors such as prices, substitutes and new uses of the oil palm products will also affect the demand for these products.

(a) Expected Future Foreign Demand

The ~~future~~ foreign demand for palm oil and palm kernels is expected to increase in the near future. Malaya's present consumers such as India and Japan are expected to have a high rate of population increase. Hence demand for palm oil from these countries is expected to increase. Future foreign demand is affected by such factors as the availability of future markets, the consumption patterns in the present markets and the use made of other oils by the foreign consumers.

The United Kingdom as the chief consumer of Malayan oil palm products poses a problem of uncertainty as to Malaya's future foreign consumption. Her determined efforts to be a member of the European Economic Community (EEC) will affect Malaya's exports of palm oil and palm kernel to the European markets. If the United Kingdom were to be a member of the EEC, no preferential treatment for Malayan oils would be allowed and hence sales of Malayan oils to the United Kingdom would decline. Furthermore, if Nigeria were to be an Associated Territory of the Community, the United Kingdom is bound to buy oils and fats from her. Thus the demand for Malayan oils would fall. However this matter is still under discussion and the end result cannot be predicted at this point of time. If the United Kingdom were to enter the EEC as a member it would definitely result in a fall in the demand for Malayan oil palm products and Malaya would have to look for other markets to sell its oil too.

(b) Expected Future Local Consumption

The Malayan government's policy of industrialisation will lead to an increase in the consumption of palm oil by the local industries. Malaya as a developing economy and with a rate of increase in population of 3.5% per annum would surely increase its consumption of oils and fats. The increased local consumption is envisaged because as a developing country, the wage earner groups are expected to have increases in their incomes. Since the income elasticity of demand for oils and fats is high, there is bound to be an increase in the demand for oils especially palm oil which is used in the production of margarine and other cooking oils.

The growing local industries such as Lam Soon and Co., Ltd, and Lever Brothers Ltd. are consuming more oils in their manufacture of soap, margarine and other cooking oils. Hence, palm oil consumption is expected to increase since it is one of the best vegetable oils in the market.

The only field of competition in the Malayan oil market is provided by coconut oil. Animal oils are limited by the animal population and a limited yearly amount can be expected from such oils. The coconut industry is a "dying industry" and not much competition is expected from it. Hence, palm oil will be one of the main oils in the Malayan oil market in the near future.

(c) Summary of the Future Demand for Malayan Palm Oil and Palm Kernels

From the above analysis of the foreign and local consumption it can be seen that there will be increases in both the foreign and local consumption of oil palm products in the future. Demand in the foreign markets will most probably be from India and Japan. Canada and the United Kingdom are also expected to increase their demand for Malayan oil palm products. Thus on the whole, future demand for oil palm products is expected to increase.

(d) Confrontation of Production and Demand Projections

The future production of Malayan palm oil and palm kernels is expected to be fully consumed. Demand for oil palm products is expected to exceed the production for it. Hence there will be no fears of overproduction of Malayan palm oil and palm kernels. All that is produced will be consumed within the same year. Thus the expected production of 160,000 tons in 1970

will most probably be consumed within that year.

(e) Possibilities of Greater Uses of Oil Palm Products

The increased quality of palm oil makes it possible for the oil to be used to a greater extent in the manufacture of cooking oils. As one of the best vegetable oils, it is expected that more of it will be used in the making of margarine. At present only about 25% of the contents of margarine is made from palm oil. This percentage can be increased if the quality of the oil is increased. Present trends tend to indicate that the quality of palm oil is improving. Previously only about 5% of the contents of margarine was from palm oil.

The palm oil which is a close link to the animal fats as previously mentioned in the early chapters has a great advantage over the other vegetable oils. It can be used both as an oil for the making of margarine and as an oil for the making of cooking oils. Thus it can be used both as an animal oil as well as a vegetable oil. Hence the prospects for more uses of the oil is good.

The Work of the Government in the Planting of Oil Palm

(a) Federal Land Development Authority

Oil palm has been for many decades an estate crop. Very few smallholders plant the crop. This is because of the high overhead costs involved in the installation of the factory, equipment and the like. To plant an acre of oil palm it is estimated that \$2,000 is needed just to cover the overhead costs. Thus smallholders find it very difficult to plant the crop on a large scale.

The Government through its policy of diversification has therefore formed the Federal Land Development Authority (FLDA) to aid the smallholders in the cultivation of oil palm. The FLDA has organised various oil palm schemes in the country. The first of such schemes was started in 1960 at Kulai, Johore. It is called the Kulai Smallholders Oil Palm Scheme. Such a scheme works in conjunction with an oil palm estate called the Kulai Oil Palm Estate. The planting, weeding, maintenance and harvesting of the palm and its fruits are carried out by the smallholders. This is done under proper supervision provided by the neighbouring oil palm estate. Such supervision is to ensure that the yields are high and that the quality

of the oil can be maintained at a high level. Once the fruits are harvested, they are taken to the Kulai Estate for processing. The net proceeds after deducting costs of factory processes, marketing costs and other similar costs are returned to the smallholders.

The object of such a scheme — a smallholder - estate scheme — is to enable the smallholders to reap the economies of scale that are not existent if they were to operate alone. Another objective is for the smallholders to ultimately own shares in the factory in proportion to the acreage they have planted. It would therefore operate as a co-operative.

Many benefits can be achieved from associating a smallholders' scheme with an estate as at Kulai. Firstly there is the benefit of proper management of the planting of palms. The estate with its skill in planting and maintaining the palms provides expert managers to supervise the smallholders in their work. Secondly, palms can be bought from the estate and repayed on a cost basis. This would also mean that the palms would be of the same species. Yields from such palms would be high since they have been the result of thorough research undertaken by the estate. The estate also trains oil palm assistants who will ultimately help in the management of the smallholder scheme. In actual fact it can be stated that the benefits derived by the smallholders in such a scheme are as good as the benefits derived from an estate scheme.

The FLDA has also started many other oil palm schemes patterned on the first one at Kulai, Johore. Other areas where land development schemes have been carried out are at Sungei Tinggi (5,800 acres) in Selangor, Jerangau (6,145 acres) in Trengganu and Ulu Jempol (4,500 acres) in Pahang. Plans have been made to increase the acreage of oil palm in such areas. The development schemes call for the planting of high yielding rubber. However, in areas where oil palm land is available, privilege will be given to the planting of oil palm. The FLDA has so far planted an acreage of about 9,600 acres. In 1964, it is expected that about 7,000 acres will be planted with oil palm. Table 5-1 gives the acreages planted by the FLDA.

TABLE 5-1

OIL PALM ACREAGE UNDER FLDA SCHEMES

Year	Acres
1961	1,000
1962	1,602
1963	6,935
1964 (expected)	7,350
Total	16,887

The greatest area of smallholder oil palm schemes will be at the Pahang Triangle. The Temerloh-Marang-Jerantut areas. About 150,000 acres are expected to be planted with rubber and oil palm. Oil palm will be planted in areas where the soils are suitable.

The FLDA schemes help the smallholders to a start in two ways. Firstly they give aid to the smallholders. This is done in the form of land, and monthly subsistence allowance for the duration when the palms are immature. The smallholder will receive about 10 acres of oil palm land and an average of about \$50 to \$70 per month as subsistence allowance. The second form of help is that the FLDA assists the smallholder in choosing the best type of cash crop to grow. Once chosen the FLDA provides the smallholders with technical advice such as the manner of planting, harvesting and the like.

Hence, the FLDA is a useful organ of the government in its present diversification policy. The useful work done by the FLDA will no doubt reduce Malaya's dependence on rubber. It would enhance the oil palm industry and make the industry more important to the Malayan economy.

(b) A Note On the Borneo Territories

At present the areas of Sarawak and Sabah do not have much oil palm acreages. However, plans have been developed to increase the acreage of oil palm in these areas. In Sarawak, the plan is to develop about 10,000 acres of oil palm especially in the Miri district. Sabah has the

optimum conditions for the cultivation of oil palm. It is expected that by 1970, the total oil palm area would be about 50,000 acres. About 12,000 acres would be under the control of smallholders.

Diagram 5-3 gives an indication as to the rate of increase in the oil palm acreage in Sabah.

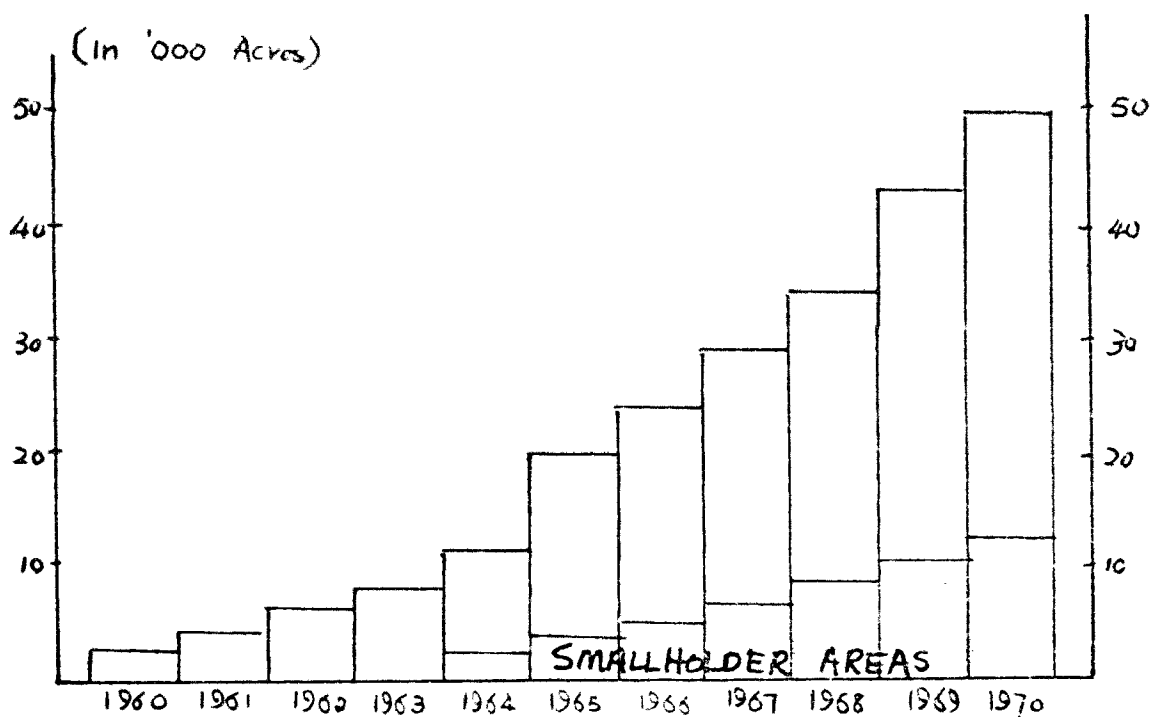


DIAGRAM 5-3: EXPECTED OIL PALM ACREAGES IN SABAH.

SOURCE : "The Path of Agricultural Development in Sabah" by E.J.H. Berwick. "Development Seminar" sponsored by the Commonwealth Development Corporation.

The production of palm oil in the Sabah area is expected to increase at a great rate over the next ten years. The area's first output of palm oil is expected in 1964. About 800 tons is expected to be produced in that year. By 1970 the total production is expected to increase to 19,000 tons. Table 5-2 shows the expected production of palm oil in Sabah in the future years.

Hence, there is a very bright future for the oil palm industry in the Borneo Territories. The output from these areas added to that of Malaya would increase Malaya's future production greatly. Thus by 1970, the total output of palm oil in Malaysia can be expected to be about 200,000 tons. The acreage then would approximately be about 250,000 acres.

TABLE 5-2

EXPECTED PALM OIL PRODUCTION IN SABAH
(in tons)

Year	Output
1964	800
1965	2,000
1966	3,000
1967	5,000
1968	8,000
1969	13,000
1970	19,000

Source: "The Path of Agricultural Development in Sabah" by E.J.H. Berwick - Development Seminar - Sponsors - the Commonwealth Development Corporation. pp. 8.

A Comparison of the Profitability of Oil Palm and Rubber

Oil palm has very often been compared with rubber in the analysis of the profitability of the various tree crops in Malaya. There are certain advantages which oil palm has over rubber. Firstly, oil palm only 4 years to mature and profits can be reaped after this 4 years period. Rubber, on the other hand takes 7 years to mature - a very much longer period than oil palm. Secondly, from present prices the oil palm tend to show a greater gross return on investment. The only disadvantage of palm oil is that it needs a very high overhead costs as compared to rubber. The overhead costs for oil palm is \$2,000 per acre for an estate of 5,000 acres and the overhead costs for rubber is approximately \$500 per acre for the same. Hence oil palm can only be grown as an estate crop while rubber can be grown as a smallholder crop.

An analysis of the profitability of the two crops can be carried out. Assuming that the average yield per mature acre of oil palm is 1.5 tons and the yield per mature acre of rubber is 1212 lbs, it is possible to calculate the gross return on investment given the various prices of the two products. Table 5-3 supplies the different returns, caused by the variation in prices.

The present prices of rubber and oil palm are in the vicinity of 19.5d per lb and £72.5 per ton oil respectively. Thus from these prices the return on rubber is less than 11.1% while the return on oil palm is more than 11.1%. Hence present prices seem to show that oil palm is a more profitable crop than rubber. Present trend in rubber prices tend to show a fast decline. Thus, this will then affect the rate of return on investment with respect to rubber. Oil Palm prices are relatively

more stable and hence the expected rate of return can be considered to be still about 11%.

Hence, to conclude the analysis, it can be seen that present conditions favour the planting of oil palm than the planting of rubber. The oil palm industry will have a very bright outlook if such conditions continue to prevail. Malaya's dependence on rubber will be reduced if more emphasis is being laid on oil palm which at the present moment is the better crop. Hence the planting of oil palm will achieve two objectives. One is the greater rate of return on investment and the other is the achievement of the aims of agricultural diversification.

TABLE 5-3.

<u>A COMPARISON OF THE PROFITABILITY OF OIL PALM AND RUBBER.</u>			
	Average Yield per mature acre	Price.	Gross Return on Capital Employed.
RUBBER.	1212 lbs.	17.6d per lb.	6.5%
		18.7d " "	8.8%
		19.8d " "	11.1%
OIL PALM.	1.5 tons.	£ 50 per ton	2.1%
		£ 60 " "	6.5%
		£ 70 " "	11.1%
		£ 80 " "	15.4%