

SURVEY OF FOOD PROCESSING ESTABLISHMENTS IN GHANA
(OBSERVATION REPORT)



GHANA SUGAR ESTATES LTD - ASUTSUARE
STATE FARMS CORPORATION - Palm Oil Processing - Kwamoso
ALANFARM SUGAR PRODUCTS LTD. - MANKESIM
WAFF TRADING COMPANY (GHANA) LTD. - NKWANTANUM
L. ROSE & COMPANY LTD. - ASEBU
CAPE COAST CITRUS LTD. - ANOMABO

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SURVEY OF FOOD PROCESSING ESTABLISHMENTS
IN GHANA

GENERAL SUMMARY

1. The Food Processing Establishments covered in the survey were established between 1929 - 1975.
2. The ~~Lautsuare~~ (Ghasel) Sugar Factory and State Farms Corporation solely belong to the State. Waff Trading Company and Alanfarm Sugar Products are state cum private undertakings and L.Rose Co. Ltd. and Cape Coast Citrus Ltd. are private enterprises.
3. Apart from Ghasel, Alanfarm and the State Farms Corporation which have made some bold attempts to establish plantations to supply their factories with at least some part of raw material supplies, the rest rely on individual farmers for their full raw materials supplies.
4. Same questionnaires were used for the survey for the collection of available data and information.
5. Plant capacities for individual establishments differ and this depends mostly on type of machinery and volume of production.
6. The position of each establishment has been discussed in the report. The report is just a preliminary one and based on observation. The actual information collected is being analysed and which can be used by the Project Leader to write a comprehensive report on ~~that~~ ^{the} subject.

INTRODUCTION

The Economics and Marketing Section of the Food Research Institute is currently undertaking a survey of all Food Processing Establishments in Ghana with the view to studying their structure and problems and find ways and means of solving these problems by way of recommendations and advice. The survey was started in 1974 and ~~will~~ continue till 1977 by which time it is hoped to be completed.

OBJECTIVE OF SURVEY

The objective of the survey is firstly to enable the Food Research Institute to compile the list of all food establishments in Ghana with the view to classifying them according to type of raw materials used, type of finished products, producers of import substitutes and export products, type of ownership and size. The study will also examine critically the raw material supply situation to the individual sections of the industry, particularly to assess the potential levels available in Ghana. Lastly, it will also produce a set of information to guide future policy on food processing in Ghana.

METHODOLOGY OF SURVEY

The survey is being conducted by means of questionnaires, face to face discussions, interviews and personal observation as to the development and progress of the factory. Questions asked in the questionnaires include dates of establishment and production, plant capacities, output per day and costs of installations. Others are, processing methods and stages, expenses on repairs, spare parts both locally and imported oil, electricity, water and others. Other factors to be taken into account are size of labour and cost, sources of raw materials supplies, problems of procurement, product lines, product mix per unit of input, by-products and wastes. Marketing, advertisement/Sales promotion expenses, storage systems and pricing policy are also areas of inevitable interest. Problems facing the factories or establishments are taken ^{into} ~~into~~ consideration.

GHANA SUGAR ESTATES LTD. (ASUTSUARE)
(ON THE SPOT OBSERVATION)

S U M M A R Y

1. Ghana Sugar Estates Ltd., Asutsuare branch was established in 1965 and came out with its first sugar in 1966.
2. The full capacity of the sugar processing plant is almost 2,500 metric tons per day of cane sugar.
3. In 1974/75 financial year the factory spent £489,819.20 on local spare parts. Total expenditure on other utilities for the same year is indicated in the observation report.
4. The seasonal operation for sugar production is between December to May and then from June-November, general maintenance of the factory machines is done.
5. The present permanent labour force of the Asutsuare sugar estates is 1,895 excluding 900 as casuals.
6. The factory has its own sugar-cane estates which are estimated to be about 3,800 acres with a supplement of 6,000 acres belonging to the outgrowers.
7. The average sugar-cane supplies to the factory is about 54,834 metric tons per annum and the sugar production about 4,364.8^{metric tons} per annum.
8. The factory pays £20.00 per metric ton for its sugar-cane supplies by the outgrowers.
9. Ghasel provides transport for outgrowers produce at the rate of 10p per ^{mile} per metric ton.

INTRODUCTION

The Economics and Marketing Section of the Food Research Institute is currently conducting a survey of all Food Processing Establishments in Ghana. To this end, a team of field officers from the section visited the Asutsuare Ghasel to collect up-to-date information on the progress of the sugar factory. The Asutsuare branch of the Ghana Sugar Estates Limited is one of the Two main sugar factories in Ghana. It was established in 1965 and came out with its first sugar production in 1966. Sugar has now become one of the most essential commodities in Ghana. It is consumed by almost everybody, and is popularly used for the preparation of quick food. This is why the Ghana Government is seriously concerned with the production of sugar by the factory to curtail the importation of sugar and simultaneously to avoid shortage.

METHODOLOGY

The survey is being conducted by means of questionnaires, face to face discussions, interviews and personal observation as to the development and progress of the factory. Questions asked in the questionnaire include dates of establishment and production, plant capacities, output per day and costs of installation. Others are processing methods and stages, expenses on repairs, spare parts both locally and imported, oil, electricity, water and others. Other factors taken into account are size of labour and costs, sources of raw materials, problems of procurement, products lines, product mix per unit of input, by-products and wastes. Marketing, advertisement/sales promotion expenses, storage system and pricing policy are also areas of inevitable interest. Problems facing the factory or establishment were taken into consideration.

Structure:- The Asutsuare branch of the Ghana Sugar Estates Ltd. has various departments within its set-up or structure. The factory is headed by a General Manager responsible for the over-all administration and running of the sugar factory. Each department or division is headed by a manager. The departments comprise Administration, personnel Agriculture or plantation, out-growers, production, technical, works and transport. It will be of interest to know briefly the functions of each department.

The agriculture department is responsible for the development and techniques of all agricultural management of Ghasel. The plantation division sees to the planting, weeding, maintenance and harvesting of canes belonging to Ghasel. Outgrowers department is responsible for the development of co-operative farms which suppliment Ghasel with sugar cane supplies. In otherwords outgrowers department is a raw material feeding division.

The works and transport department sees to the carting of all raw materials (cane) needed by Ghasel from the field and collection points, and the Processing and Production dividion is responsible for the processing of cane and production of sugar. Without the technical department there will be no factory activity therefore its function is to maintain and service the bulk plant for processing purposes.

Plant Capacities:- The Asutsuare factory has 2,500 metric T.C.D. as the engine capacity for processing sugar. The cost of installation could not be obtained since Ghasel was not the originator of the factory. While talking about capacities period of operation and off-^{Season}section should be taken into account.

Seasonal Operation:- The Ghasel of Asutsuare operates from December- May. During this period the sugar cane is harvested for processing. The factory men run three shifts of 8 hours each starting from 6 a.m. till 6 a.m. the following day. This is 24 hours continous operation.

Off-Season:- The off-season is between June-November and it is at this time when routine services and general maintenance take place.

Raw Material Supplies:- At Asutsuare, Ghasel has its own plantation for the development and supply of sugar cane to feed the sugar factory. The company's own sugar cane supply is not enough. For this reason it buys additional sugar-cane from the outgrowers department. The sugar-cane plantation of Ghasel is about 3,800 acres (1,520 Hectres) and that of outgrowers is about 6,000 acres (2,400 Hectres). The table below shows the raw material supplies position for the previous years. The current price for outgrowers cane is £20.00 per metric ton.

TABLE I

CANE SUPPLIES (QUANTITIES IN METRIC TONS)

Year	Ghasel	Outgrowers	Total
1966/67	-	5,540	5,540
1967/68	-	10,079	10,079
1968/69	26,743	24,620	51,363
1969/70	10,456	26,332	36,788
1970/71	9,613	27,737	37,350
1971/72	19,117	63,281	82,398
1972/73	15,925	53,948	69,873
1973/74	24,406	53,980	78,386
1974/75	27,414	50,201	77,615
1975/76	45,000	53,948	98,948
Totals	178,674	369,666	548,340
Average *p.a.	22,334	36,967	54,834
" % p.a.	12.5%	10.0%	10.0%

* P.a. - Per annum.

Sugar Processing and Production:- The processing and production of sugar are carried out by the production department. Briefly, the processing stages for sugar consist cane preparation and conveyance, extraction of the juice, clarification, crystallisation, centrifugal and separation, drying of sugar grains and final product for bagging.

Since the present sugar factories have passed through different managements the production figures for sugar for the previous years, could not be obtained by the present management of Ghasel. However, figures for the last three years i.e. from 1973-1975 are indicated below Table II. The figures are for Ghasel. Table III indicates production of alcohol from molasses and Table IV shows production of molasses.

TABLE II

SUGAR PRODUCTION (QUANTITIES, METRIC TONS)

Year	Quantity
1972/73	3,154.2
1973/74	3,605.0
1974/75	5,000.0
1975/76	5,700.0
Total 4 years	17,459.2
Average p.a.	4,364.8
Average % p.a.	25.0%

TABLE III
ALCOHOL PRODUCTION (QUANTITIES IN METRIC TONS)

Year	Quantity
1972/73	1,370,460
1973/74	1,706,657
1974/75	1,321,020
1975/76	?
Total 3 years	<u>4,398,155</u>
Average p.a.	1,466,052
" % p.a.	33.3%

TABLE IV
PRODUCTION OF MOLASSES (QUANTITIES IN METRIC TONS)

Year	Quantity
1972/73	3,493.6
1973/74	3,919.3
1974/75	3,880.7
1975/76	?
Total 3 years	<u>11,293.6</u>
Average	3,764.5
" %	33.3%

Other Factors:- Other factors taken into consideration during the survey include labour, expenditure on wages and salaries, expenditure on electricity, oil, fuel, water, spare parts and others.

Labour Force:- Table V will indicate labour force and where available with corresponding figures on wages and salaries for the previous years. Wages and salaries ^{were} ~~are~~ difficult to obtain due to accounting system and arrangements.

TABLE V

LABOUR FORCE

Year	Managerial & Senior Staff	Clerical	Skilled	Unskilled Others	Annual Expenditures on Wages & Salaries
1975/76	57	68	850	1,220	?
1974/75	45	68	980	550	£2,544,281.18
1973/74	34	86	580	1,500	?
1972/73	28	80	660	1,600	?
1971/72	34	80	960	600	?
Total	198	382	3,940	5,470	
Average p.a.	40	76	788	1,094	
Average %	20.2%	19.9%	20.0%	20.0%	

Table VI Shows other Expenses.

TABLE VI
OTHER EXPENDITURE

Year	Electricity	Oil/Fuel	Water	Other Specify
1975/76	?	?	?	?
1974/75	₹8,650.00	₹668,905.87	NIL	₹825,922.22
1973/74	N O T	A V A I L A B L E		
1972/73	"	"		
1971/72	"	"		

Product Mix:- The product mix per unit of input of sugar products according to the production division is as follows:-

- 5% - 8% or 5 - 8 tons of sugar per 100m. tons of cane
- 5% or 5 metric tons of Molasses per 100 metric tons of cane and
- 50 gallons of alcohol per ton of molasses.

Outgrowers Produce:- The outgrowers produce is the sugar-cane produced and supplied by private co-operative farmers association. These sugar-cane farmers are given technical aid by Ghasel commencing from the land preparation up to the time of harvesting and sales. Facilities and charges available to the farmers include,

- i. Land preparation:- Ploughing ₹21.00 per acre (0.4 hectre) harrowing ₹8.00 per acre (0.4 hectre) ridging ₹8.00 per acre (0.4 hectre).
- ii. Fertilizer:- BHC Powder and sulphate of Amonia are supplied to the outgrowers at the rate of ₹3.50 per bag of 1.2 kilogram and ₹25.00 per bag of 100 kilogrammes respectively.

- iii. Cane Seedlings:- Seedlings are available to the farmers at the rate of £20.00 per ton.
- iv. Transportation:- Transportations is provided by Ghasel at 10p per mile per metric ton of cane or seedlings.
- v. Mode of Payment:- Payment of cane supplies is done by cheques offered to the farmers by Ghasel and presented to ^{the} Agricultural Development Bank for cash payment.
- vi. Price:- The price of matured ^{was} cane offered by Ghasel ~~is~~ £20.00 per metric ton ^{at the time of the survey (June, 1976)}.
- vii. Levy:- Levy of 10p per ton on sugar cane is paid to the Local Council by each outgrower after each sale of produce.
- viii. Dues:- A dues of 30p per ton or cane supplies is charged against each cane farmer who belongs to the sugar-cane Plantation Association at Asutsuare and the surrounding villages.

Distribution and Prices:- Ghasel produces its products - (Sugar being major item) for the Logistics who distribute them to the various commercial firms, supermarkets, institutions, Government departments and schools. The price of sugar is fixed by the Prices and Incomes Board. The current wholesale prices are sugar £60.45 per 50 kg and Alcohol 49.44 per gallon. The alcohol is distributed by Ghasel to alcohol distillers.

PROBLEMS

Raw Materials:- The Ghana Sugar Estates Ltd. has not been able up to now to depend solely on its own cane supplies. This has not been possible due to insufficient land acquisition. At Asutsuare (Ghasel) owns about 3,800 acres of sugar estates while the outgrowers have about 6,000 acres of cane plantations. This means Ghasel depends much more on the outgrowers for cane supplies.

Harvesting:- Rains disturb harvesting of canes. This happens when rains start too early or very late. When rains disturb harvesting is delayed and cane go rotten therefore production period more hands are needed to complete cutting of cane on schedule.

Land Acquisition:- The company ^{was} ~~is~~ not getting the co-operation it needs ~~ed~~ from the land owners in order to expand its estates.

Transportation:- This is not adequate and government should grant more import licence for additional trucks, trailers and spare parts.

RECOMMENDATIONS

1. In view of the fact that the Government wants the Agro-based industries to feed their factories, Ghasel should be encouraged to acquire more land to extend its cane estates which will go a long way to increase its sugar production.
2. The sugar-cane outgrowers should be encouraged to form strong co-operatives in order to qualify for loans and other facilities for expansion purposes.
3. That Government should grant sufficient licence for Ghasel to increase its fleet of vehicles and carting trailers for both outgrowers and Ghasel produce.
4. Voluntary organisations and other institutions to help during harvesting time to avoid rotten and decay of mature canes.
5. Ghasel must improve upon the colour and quality of its sugar.

STATE FARMS CORPORATION
(KWAMOSO PALM OIL PROCESSING)
FIELD OBSERVATION

S U M M A R Y

1. Kwamoso State Farm Corporation Oil Palm plantation was established in 1960 and in 1969 palm oil processing started.
2. The total acreage of the Kwamoso oil palm plantation is about 1,500 acres. Apart from Kwamoso there are two other subsidiary plantations at Huhunya and Okrakwadjo. The total acreage for the two subsidiary plantations is about 387 acres. The palm oil mill gets its palm fruits supplies from these three farms.
3. The Kwamoso oil mill is not fully mechanised therefore the daily output is low. The average daily palm oil production is approximately 790 lbs.
4. The average annual production of fresh palm fruits could not be obtained due to the re-organization last two years. However, it was indicated that figures could be obtained from the S.F.C. head office Accra. The S.F.C. produces two varieties of palm fruits, these are Dura and Tenilar.
5. Kwamoso S.F.C. spends about £1,000.00 on local spare parts and £360.00 on oil per annum. Annual expenditure on other utilities like electricity, fuel and water could **not** be given on the spot. This would be supplied by the S.F.C. head office.
6. Total labour force as at present is 532. (May-June, 1976)
7. The factory works throughout the year and throughout the seven-days of the week.
8. Palm oil output for 1972-1976 (April) was 786 tons approximately.

9. Prices for S.F.C. products are fixed by the Head Office based on cost of production and with the approval of Prices and Incomes Board.
10. The current prices of S.F.C. products are: Palm Oil £300.00 per drum, Palm Kernel Oil at £305.00 per drum and palm fruits at 6p per lb.
11. There is the need for complete processing plant for Kwamoso Oil Mill in order to boost up production.

INTRODUCTION

Kwamoso which is in the Eastern Region is one of the State farms Corporation palm oil mills station. Kwamoso has its own oil palm plantations at Huhunya and Okrakwadjo which send their raw materials to Kwamoso for processing.

The Kwamoso oil palm plantation was established in 1960 and its first consignment was harvested in 1969, and in the same year the processing of palm oil was started. The oil mill is not fully mechanised. It is almost traditional with only pounding and pressing equipment.

Methodology

Questionnaires ^{were} ~~are being~~ used for the survey. Apart from the questionnaires, personal discussions, interviews, observations and inspection form part of the survey methodology.

Processing Stages

Processing stages for the Kwamoso palm oil are cumbersome. The stages consist splitting and packing of fruits, filling drums with fruits, boiling of fruits, pounding, pressing, separation of fibre and nuts, repressing of fibre to get crude oil, boiling of crude oil, skimming and reboiling to get final oil.

Equipment :- Equipment used for processing include drums, pounding and pressing machines, tables and storage tanks for storing the final edible oil.

Raw Materials :- As already elucidated, raw materials supply is not a problem. There are always fresh palm fruits available for processing purposes. The fresh palm fruits are obtained from both the Kwamoso, Huhunya and Okrakwadjo oil palm plantations. Part of the palm fruits are sold fresh to customers since all cannot be processed at the same time. This is also done to avoid waste and destruction of any surplus fresh fruit bunches. There are two main varieties of palm fruits and these are the 'Dura' and 'Tenilar'. The total size for both the three oil palm plantations which supply raw materials for Kwamoso mill is approximately 2,300 acres. Figures for fresh fruit bunches for the previous years were unavailable owing to changing of managements of these farms. However, these could be available in future for research purposes.

Products :- Kwamoso S.F.C. mill processes palm oil and a little kernel oil. The wastes which are the hard skins of the nuts (shells) are never thrown away. They are thrown on the corporations farm roads to avoid slipperiness. They are also used as fuel. The dried fibre is also used as fuel. Table one shows output of products for the past three years. Kwamoso oil mill operates throughout the year.

TABLE I

PALM AND KERNEL OIL OUTPUT (QUANTITIES IN TONS)

Product	*1976	1975	1974	1973	1972	1971
Palm Fruits	-?	-?	-?	-?	-?	-?
Palm Oil	73.89	238.19	181.46	146.49	144.98	
Kernel Oil	4.15	9.42	1.357			

* As at April 1976

1. Product Mix:- The product mix per unit of palm oil output is about 1 ton of fresh palm fruits to 10% of palm oil.
2. Prices:- The current wholesale prices for the Kwamoso State Farms products as follow.:-

Palm Oil - £300/drum of 44 gallons or 200 litres
Fresh Palm fruits-- 6p/lb wgt.
Palm Kernel Oil - £305.00/drum of ⁴⁴gallons or 200 litres

Labour Force

The stage of present labour force is as follows:-

Year	Managerial	Clerical	Skilled	Unskilled	Others	Total Wages Salaries p.m.
1975/76	3	9	57	448	15	£36,423.16/p.m.

Marketing of Products

The Kwamoso S.F.C. sends the greater part of its products to its headquarters in Accra for distribution to various shops for sale. The prices for these products such as the fresh palm fruits and the oil are fixed by the headquarters based on costing.

Problems:

There are two major problems facing Kwamoso S.F.C. oil mill. These are:

1. The development of the remaining portion of the acquired land for oil palm plantation. The snag is that the land Lords are behaving recalcitrantly towards the release and development of their lands into oil palm estates and this is hindering the expansion programme of the Kwamoso S.F.C.

2. The present system of palm oil processing is very poor. The processing is completely traditional and crude and there is the need to introduce complete mechanised system of oil processing on the lines of Asraku Oil Mill.

Suggestions For Improvement

1. Government should intercept on behalf of the Kwamoso S.F.C. for land for expansion purposes.

2. As already indicated there is the need for mechanised system for oil processing at Kwamoso since the raw material supply is regular and therefore poses no problem. When oil milling plant is installed at Kwamoso it will obviously increase the palm oil output needed for consumption and for industrial purposes.

ALANFARM SUGAR PRODUCTS LTD. (MANKESIM C/R)

(FACTORY OBSERVATION)

S U M M A R Y

1. The Alanfarm Sugar Products Limited is a State cum Ghanaian private undertaking which was established in 1975, with the aim to produce sugar. The company's first sugar production came out in February 1976.
2. The cost of the factory installation was ₵50,000.00 and its expected useful life is about 15 years.
3. The Alanfarm has its own sugar-cane plantation which is 200 acres to feed its factory but this is not enough so it relies on individual private farmers for additional cane supplies.
4. The factory works five days in a week at 3 shifts/day and its season of operation is December - August.
5. Presently the factory uses about 600 tons of cane per month. Output for sugar up-to-date is about 2,650 kilograms. It is able to obtain about 800 gallons of molasses a month.
6. The factory charges 10p per ton per mile for transporting farmers' sugar-cane purchased.
7. The product mix per output of sugar-cane is as follows:- 3% of sugar per ton of sugar-cane, and 15%-20% of molasses per ton of cane. The molasses is sold to alcohol distillers and the cane chaff is used ^{as} ~~for~~ fuel.
8. Sugar produced by the factory is sent to the Logistics, Accra for distribution and the current prices are; sugar at ₵1.50/kilo and molasses at ₵100.00/drum of 200 litres.

INTRODUCTION:

The Alanfarm Sugar Products Limited is a Joint State/Private company established in 1975 with the aim of producing sugar. The first consignment of Alanfarm sugar cane out in 1976. The factory is still on the take-off stage and it is too early to predict any future prospects.

EQUIPMENT AND PROCESSING

The Alanfarm Sugar factory has been able to ^{install} ~~fix~~ a medium size plant for the processing of its sugar. The plant consists the mill, clarifiers, pans or containers, tanks, crystallizer, centrifugal and dryer and lastly storage tanks for molasses.

The processing stages consist milling or extraction of the cane juice, clarification, preheating of the juice, settling and evaporation, crystallisation, separation of sugar or crystals from the juice and the drying of these crystals to obtain fine sugar.

Supply of Raw Materials

Sugar cane supplies to Alanfarm sugar factory are obtained partly from its own sugar plantation and from private individual sugar-cane farmers in and around Mankesim district. The average sugar-cane supplies to the factory per month according to the manager is about 600 tons. The factory's own plantation is about 200 acres or 80 hectares. The variety of sugar cane used for the processing is hybrid and is purchased at £20.00 per ton from the farmers.

Transportation for the conveyance of the cane produced ^{by} ~~for~~ the individual farmers is provided by the Alanfarm at the rate of 10p per ton per mile.

Products

The main product of the factory as indicated already is granulated sugar but other useful by-products are obtained alongside the Sugar. The by-products are molasses and the bagasse or chaff which are obtainable by all sugar factories in the world. The molasses is sold to alcoholic distillers and the bagasse or chaff used as fuel for the factory. The quantity of sugar produced by the factory since the beginning of this year is about 2,650 kilogrammes.

The product mix per unit of output for the two products - sugar and molasses ^{is} ~~are~~ as follows:-

- a. 1 ton of sugar-cane gives about 3% or 67.2lb of fine sugar.
- b. 1 ton of sugar-cane gives 15%-20% or ^{224lbs-336lbs} ~~336-224lbs~~ of molasses.

Marketing

The sugar produced by Alanfarm factory is sent to the Logistics Committee for distribution and marketing. The price of sugar fixed by the Logistics is £1.50/kilo. The factory however has obtained permission to sell its own molasses to customers at the rate of £100.00 per drum of 200 litres in weight.

Labour Force

The current position of labour force for the factory is as follows:-

<u>Year</u>	<u>Managerial & Senior Clerical</u>	<u>Skilled</u>	<u>Unskilled</u>	<u>Others</u> (casuals)	<u>Total Wages</u> <u>Salaries pm.</u>	
1976(May)	4	6	2	43	15	£4,000.00

The factory works Five days in a week and runs three shifts a day starting from 7 a.m.-7 a.m. the next day at 8 hours per shift.

Expenditure On Utilities

The State of expenditures as at the time of the survey (May/June, 1976) and since the establishment of the factory is indicated thus:-

<u>Year</u>	<u>Electricity</u>	<u>Oil/Fuel</u>	<u>Water</u>	<u>Others</u>
May/June 1976	£60.00/pm or £720.00/yr.	£100.00 year	£60.00/m or £720.00/yr.	£20.00/wk. or £960.00/yr.

Problems

1. The supply of raw materials i.e. cane is not regular and therefore insufficient. This hinders the flow of sugar production.
2. The Alanfarm needs encouragement and the push to expand its own sugar estates to feed its factory. This means land acquisition for expansion is difficult.
3. Financial assistance in a form of loan or technical aid is not adequate according to the factory manager.

Suggestions

1. The organisational structure of Alanfarm sugar products Limited needs to be re-organised to give it a proper management and sound footing. This will improve efficiency resulting in increased sugar output.
2. The factory must have its own modern laboratory fully equipped to test its products. This will also increase the quality of their products.
3. The factory should acquire more land to expand its sugar-cane plantations. This will avoid failure of cane supplies by the private farmers.

WAFF TRADING COMPANY (GHANA) LTD.
NKWANTANUM (BREMEN-ESIAM)
(ON THE SPOT OBSERVATION)

S U M M A R Y

1. Waff Trading Co. (Ghana) Ltd. is a joint State cum Ghanaian private enterprisse established in 1968 with Agricultural Development Bank Loan. Its first palm oil and kernel oil production came out in March, 1974.
2. The factory has its own processing plant for the manufacture of its products. The toal cost of its installation was £191,913.00 in 1968.
3. The factory does not experience frequent breakdowns since the entire plant is new.
4. The total expenditure on utilities for 1975/76 is about £12,900 made up of Oil/Fuel, Water and other expenses excluding electricity bills. Waff has its own electric plant.
5. The total labour force for 1975/76 is 44.
6. The factory works 5 days in a week with two shifts during production period.
7. The annual average supply of palm fruits - raw materials is about 50 tons. The highest palm oil output was 76.84 tons and this was in 1975. *for the previous years*
8. The product mix per unit of output is about 12 tons of palm fruits to 5 drums/1,000 litres of palm oil.
9. By-products of Waff include fibre, kernel, shells and empty bunches. The fibre is used as fuel, kernel for oil or for sale, shells for fuel and empty bunches for manure.

10. The factory has acquired about 350 acres (140 hectares) of land for the establishment of its own oil palm estates.
11. The current prices for Waff products are: Palm oil at £8.00 per gallon or at £285.00 per drum and palm kernel at £25.00 per bag of 160lbs, uncracked nuts at £8.00 per bag of 180lbs.

INTRODUCTION

Waff Trading Company (Ghana) Limited, is a liability company established in 1968 with the objective of producing cooking oils for human consumption and for industrial purposes. The first production of Waff Oil (Palm Oil) came out in March, 1974. This enterprise is being sponsored by the Agricultural Development Bank and it is a joint State/Private Ghanaian venture. It is situated at Nkwantanum, ^{near} Breman Ajumako in the Central Region.

Objective

The main objective of the survey was to acquaint ourselves with on the spot study and observation of the processing and production activities of the factory. In observing these activities we also concerned ourselves with the supply of raw materials, equipment for processing, expenses on essential utilities, labour force, season of operations and maintenance, production figures for the past years, product mix, storage facilities, marketing system, pricing and the organisational structure of the factory.

Processing Stages

The processing of the Waff palm oil passes through the following stages:- Sterilizer (boiling of the palm fruits), stripper (removal of fruits from bunches), elevator (conveys fruits to the digester), Digester (pounding and digesting of fruits), centrifugal (pressing and extraction of oil and sludge from fibre), crude oil tank (container for finished but not deodorised oil), clarification (stage for oil deodorising and analysis to obtain edible oil.)

Products:- Palm and kernel oil are the two products of the Waff factory. However, there are by-products of fibre, shells and empty bunches used as fuel. The empty bunches are also conveyed by the State Farms Corporation for use as fertilizer of farm manure.

Equipment:- The whole processing is mechanised and the following plant or equipment are used - sterilizer, stripper, elevator, digester, centrifugal, tanks and clarifier, other auxillary equipment used are boiler, diesel engine, one tractor and three trucks.

Raw Materials:- Waff depends on the nearby State Farms and the individual farmers for the supply of palm fruits for its processing of palm and kernel oils. Unfortunately, it has not been able to develop or establish its own palm estates due to time factor and availability of land before the establishment of the factory. However, Waff has now acquired about 350 acres (140 hectares) of land for the establishment of its own palm estates to feed its mill.

Below are the figures showing raw material supplies to Waff factory for the past three years.

<u>Year</u>	<u>Produce</u>	<u>Quantity</u>	<u>Price Paid</u>
1974	Fresh Palm Fruits	25.2 tons	£67.20 per ton
1975	" " "	47.3 "	78.40 " "
1976 (January- April)	" " "	<u>26.4 "</u>	<u>" " " "</u>
Total (Excluding 1976)		<u>72.5 tons</u>	<u>145.60 per ton</u>
Average		<u>36.3 tons</u>	<u>72.80 per ton</u>

Palm Oil Production

The figures below indicate palm oil output by Waff since its inception:-

<u>Year</u>	<u>Produce</u>	<u>Quantity</u>	<u>Current Price</u>							
1974	Palm Oil	11.32 tons	£285	per	drum	£8	per	gallon		
1975	"	76.84 tons	"	"	"	"	"	"	"	"
1974	Kernel Oil	10.0 tons	?	?	?	?	?	?	?	?
1975	Kernel Oil	18.8 tons	?	?	?	?	?	?	?	?

Product Mix:- The product mix per unit of out put of palm oil produced by Waff is as follows:-

12 tons of Palm fruits produce 5 drums of 39lbs each of palm oil and 40% of palm kernel.

Labour Force:- The current total labour force of the factory is 44 made up as follows:-

<u>Year</u>	<u>Managerial/Senior</u>	<u>Clerical</u>	<u>Skilled</u>	<u>Unskilled</u>	<u>Others</u>	<u>Total</u>
1975/76	5	5	11	19	4	44
1974/75	4	5	11	19	4	43

Problems:

The major problem facing Waff currently is the supply of raw materials. At the moment Waff depends solely on the private individual farmers and the State Farms Corporation for fresh palm fruits for the processing of its products mainly palm oil. But the snag now is the raw materials supply is very irregular hence processing is never continuous throughout the year. The only answer to this is the establishment of Waff's own oil palm plantations.

L. ROSE & COMPANY LTD. (GHANA) ASEBU

S U M M A R Y

1. L Rose and Co. Ltd. was established in 1929 and in that same year came out with its first finished products.
2. L. Rose is a private expatriate company with sole aim of processing lime juice, Oil, shreds, skins and peels. The annual output of its products is shown in table II of the report.
3. The company obtains its raw materials, i.e. the fresh lime fruits from private farmers in the Asebu district. Raw materials supply is very encouraging and the company pays £35.93 per ton of lime fruits to the suppliers currently.
4. The full capacity of the factory plant is about 25 tons per hour and the company is utilizing it fully without problem. The expected useful life of the factory plant is about 10 years.
5. The annual output of products from 1969 - 1975 is shown in a table.
6. The other tables indicate the supply of raw materials, expenditure on utilities like water, electricity, oil and fuel and strength of labour force for the past years - 1969-1975.
7. The factory branch works throughout the seven days of the week at three shifts per day starting from 7 a.m. - 7 a.m. the next day.
8. The lime fruits of the producers are collected by the company's vehicles from towns and villages to the buying centres free of charge and spot cash paid for the produce at £1.00 per box of 53lbs. weight.
9. L. Rose exports all its products to the world market mainly United Kingdom.

INTRODUCTION:

L. Rose and Company Ltd. was established in 1929 as a private expatriate liability company. It is located at Asebu near Cape Coast in the Central Region. The main objectives for the establishment of L. Rose was to process fresh lime fruits into lime juice and lime oil. Other by-products of the factory are lime shreds, lime skin~~g~~ and lime peels. All these products are produced for export. The first finished products of the company came out in that same year when it was established.

Processing

L. Rose has its own plant for the processing of its products. This means all stages of production are fully mechanised. The processing of the lime juice passes through the following stages - crushing mills, filtration of juice through vacuum filters, concentration of juice through evaporation and oil recovery through distillation. The rated capacity of the plant is about 25 tons per hour.

Raw Materials Supply

The company gets its supplies of raw materials (lime fruits) from individual farmers in the surrounding towns and villages in the Asebu District. With the supply of lime fruits the General Manager expressed his satisfaction. This means although the factory has no plantation of its own, supplies from individual farmers are regular and in sufficient quantities. There is therefore no problem with raw material acquisition.

Below is a table showing fresh lime fruits supplies to the factory from 1969-1975.

TABLE I
LIME FRUIT SUPPLIES 1969-1975 (QUANTITIES IN TONS)

Year	Produce	Supply Sources	Annual Supplies	Grade	Price per ton
1975	Fresh Lime Fruits		24,000	Local Type	¢ 35.93/ton
1974	"		29,590	"	36.97 "
1973	"	Asebu	20,694	"	28.52 "
1972	"	District	19,666	"	28.52 "
1971	"		18,989	"	22.39 "
1970	"		23,010	"	22.39 "
1969	"		16,253	"	22.17 "
Total	"	"	152,202	"	196.89 "
Average p.a.	"	"	21,742	"	28.13
" %	"	"	14.3%	"	14.3%

Finished Products:

Finished products of L. Rose consist lime juice, lime oil, lime shreds lime skins and lime peels.

Below indicates output of finished products from 1969-1975.

TABLE II

FINISHED PRODUCTS FOR 1969-1975

Quantities <i>UNITS</i>	Product	1975	1974	1973	1972	1971	1970	1969
Gallons	Lime Juice	448,970	559,376	610,762	531,221	531,221	439,960	573,770
Lbs.	" Oil	39,780	51,475	36,950	41,338	38,639	61,060	49,220
Casks	" Shreds	460	250	500	200	675	900	320
"	" Skin	1,750	600	1,240	1,050	1,900	900	2,215
Tons	" Peel	1,372	1,667	1,368	1,195	1,031	1,175	636

The main product among the finished products shown above is the lime juice, the other four are all by-products obtained after the extraction of the juice from the lime.

Marketing and Prices

All the products of L. Rose are exported ^{mainly} to ~~mainly~~ United Kingdom. The prices for the products according to the company are determined by market forces prevailing on the world market. They could not give the current prices of their products but this could be supplied by Bank of Ghana or the Central Bureau of Statistics, External Trade Section.

Expenditure on Utilities

Apart from expenses on local and imported spare parts annual expenditure on other utilities are shown in the table below. The utilities are electricity, oil/fuel and water. Expenses on local and imported spare parts are about £38,332 and £35,900 per annum respectively.

TABLE IIIANNUAL EXPENSES ON UTILITIES - 1969-1975

Year	Electricity	Oil/Fuel	Water	Others
1975	£ 26,936	£ 121,806	£ 3,476	-
1974	26,739	120,767	3,568	-
1973	28,774	67,045	3,273	-
1972	24,411	61,968	3,167	-
1971	24,569	52,205	2,985	-
1970	16,708	66,643	3,031	-
1969	?	98,130	2,889	-
Total	£148,137	£588,614	£22,389	-
Avg. p.a.	24,690	84,088	3,198	-

Labour Force

Classification of Labour force is shown in table IV.

TABLE IV

CLASSIFICATION OF LABOUR FORCE - 1969-1976

Year	Managerial	Clerical	Skilled	Unskilled	Others	Total Exp. on Wages & Salaries
1976	5	16	128	28	Nil	?
1975	5	16	128	28	"	£ 222,154 p.a.
1974	5	16	126	27	"	191,158 "
1973	3	16	125	27	"	164,723 "
1972	3	15	123	26	"	139,754 "
1971	4	12	124	25	"	119,275 "
1970	4	11	127	25	"	128,272 "
1969	4	11	127	25	"	112,682 "
Total	33	113	1,008	211	-	£1,078,718 "
Average p.a.	4	14	126	26	-	154,103 "

CAPE COAST CITRUS LTD.
ANOMABO

Cape Coast Citrus Ltd. is a private/Ghanaian Company with Foreign participation. It was established in 1973 with the purpose of processing lime juice and oil. It is just on the take-off stage and its first production came out in 1975 November,

It is a fully mechanised factory. The cost of plant installation alone was \$138,000.00 with expected useful life of 15 years. The total cost of the establishment plant capacity is approximately 2/tons per hour.

The Lime Juice processing passes through milling and pressing, settlement and separation, distillation of lime juice and oil, concentration of juice and lastly filtration of the lime juice.

The factory operates mostly from April - December and carries out general maintenance for the rest of the year. It works six days in a week with 3 shifts a day at 8 hours per shift.

It is not the policy of the company to establish its own lime estates since this can fully be supplied by the farmers in the Anomabu, Cape Coast and the surrounding villages. The company expects to receive more than 10,000 tons of lime fruits per season from the local farmers. At the moment the factory pays \$42.00/ton to the producers for lime fruits. Transportation is provided by the company free of charge.

Cape Coast citrus Ltd. exports all its products abroad to compete at the world market. The most consuming countries are the United Kingdom and the United States of America. The current prices of its products are, oil \$7.00/lb and lime juice \$7.05 per gallon of about 9lbs weight. The total production of lime juice and lime oil from November 1975 - April 1976 is 101,500 gallons and 15,300 gallons respectively and according to the factory manager, the product mix per unit of output for the factory is about 24 gallons of concentrated juice and 3.1lbs. lime oil per ton of lime fruits.