

APPENDIX

Appendix I : THE 12 - MONTH MOVING AVERAGE METHOD.

	(1) Prod. (tons)	(2) 12 month Prod. (tons)	(3) Sum of pairs	(4) 12 month Moving average	(1 - 4)
1959					
Jan. 1	5225				
Feb. 2	4824				
Mar. 3	6553				
Apr. 4	5268				
May 5	5055				
June 6	5931	71541			
July 7	6912	72247	143788	5991	921
Aug. 8	7005	74655	146902	6121	884
Sept. 9	6674	75547	150202	6258	416
Oct. 10	5931	77917	153464	6394	- 463
Nov. 11	6145	80045	157962	6582	- 437
Dec. 12	6018	83241	163286	6804	- 786
1960					
Jan. 1	5931	85956	169197	7050	-1119
2	7232	86958	172914	7205	.27
3	7445	87463	174421	7268	177
4	7638	88359	175822	7326	312
5	7183	89821	168180	7424	-241
6	9127	90343	180164	7507	1620
7	9627	90390	180733	7531	2096
8	8007	88802	179192	7466	541
9	7179	88652	177454	7494	-215
10	6827	87827	176479	7353	-526
11	7607	87993	175820	7326	-281
12	6540	87566	175559	7315	-775
1961					
Jan 1	5978	87352	174918	7288	-1310
2	5644	87930	175282	7303	-1659
3	7295	90557	178487	7437	- 142
4	6813	92948	183505	7646	- 833
5	7349	93521	186469	7770	- 421
6	8700	93348	186869	7786	914
7	9413				
8	8585				
9	9806				
10	9218				
11	8180				
12	6367				

APPENDIX I

	1959	1960	1961	Total	Average	Adjusted Average
Jan.1		- 1119	-1310	-2429	-1214.5	-1184
2.		27	-1659	-1632	- 816	- 785
3.		177	- 142	35	17.5	48
4.		312	- 833	- 521	-260.5	- 230
5.		- 241	- 421	- 661	-330.5	- 300
6.		1620	914	2534	1267.0	1298
7.	921	2096		3017	1508.5	1539
8.	884	541		1425	712.5	743
9.	416	- 215		201	100.5	131
10.	463	- 526		- 989	- 494.5	- 464
11.	437	281		- 156	- 78.0	- 47
Dec. 12	786	775		-1561	<u>780.5</u>	<u>- 750</u>
					3606.	-3760
					<u>= 3975</u>	<u>3759</u>
					$\frac{-369}{12} = 30.8$	- 1

Source: Figures of production from monthly statistical bulletin.

APPENDIX II

TREND OF PRODUCTION OF PALM OIL
(tons)

Year	X	Output (Y)	X ²	(X.Y)
1955	-4	56,000	16	-223,000
1956	-3	56,000	9	-168,000
1957	-2	58,000	4	-116,000
1958	-1	70,000	1	<u>- 70,000</u>
1959	0	72,000	0	-578,000
1960	1	90,000	1	90,000
1961	2	93,000	4	186,000
1962	3	106,000	9	318,000
1963	4	<u>124,000</u>	<u>16</u>	<u>496,000</u>
		<u>725,000</u>	<u>60</u>	<u>1,090,000</u>
				<u>- 578,000</u>
				<u>412,000</u>

Trend equations

1) $\sum Y = Na$

2) $\sum XY = b\sum X^2$

$\therefore 9a = 725,000$

" $a = 80,556$

" $60b = 412,000$

" $b = 6,867$

$y = a+bx.$ (trend line)

$\therefore y = 80,556 + 6,867 x.$

To calculate production in 1970 $x = 11.$

$\therefore Y = 80,556 + 6,867 \times 11.$
 $= 80,556 + 75,537$
 $= 156,093 \text{ tons.}$

APPENDIX III

TREND OF PRODUCTION OF PALM KERNELS
(tons)

Year	x	Output (y)	x ²	(x.y)
1955	-4	15,000	16	-60,000
56	-3	15,000	9	-45,000
57	-2	15,000	4	-30,000
58	-1	18,000	1	<u>-18,000</u>
59	0	19,000	0	153,000
60	1	24,000	1	24,000
61	2	24,000	4	48,000
62	3	28,000	9	84,000
63	4	<u>30,000</u>	<u>16</u>	<u>120,000</u>
		188,000	60	276,000
				153,000
				<u>123,000</u>

Trend equations are:

$$\begin{aligned} 1) \quad & zy = na \\ 2) \quad & z x y = bz x^2 \\ & 9a = 188,000 \\ & a = 20,889 \end{aligned}$$

$$\begin{aligned} 60b &= 123,000 \\ b &= 2,050 \end{aligned}$$

Trend line is $Y = a + bx$

$$\therefore Y = 20,889 + 2050 x$$

$$\begin{aligned} \therefore & \text{in 1970, } x = 11 \\ & = 20,889 + 2050 (ii) \\ & = 20,889 + 22550 \\ & = 43439 \text{ tons.} \end{aligned}$$

APPENDIX IV

CALCULATIONS AS TO THE RATES OF INCREASE OF PRODUCTION .

Annual Palm Oil increase = 7,000 tons

Annual Palm Kernel increase = 2,000 tons

(i) Palm Oil Production in 1955 = 56,000 tons

Palm Kernel Production in 1955 = 15,000 tons

∴ rate of palm oil increase based on
1955 figure is $\frac{7000}{56000} \times 100$
= approximately 12½ %

∴ rate of palm kernel increased based on 1955
figure is $\frac{2000}{15000} \times 100$
= approximately 13 %

(ii) Palm Oil Production in 1960 = 90,000 tons.

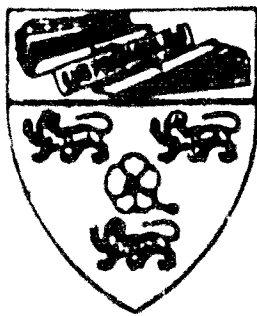
Palm Kernel Production in 1960 = 24,000 tons

∴ rate of palm oil increase based on 1960
figure is $\frac{7000}{90000} \times 100$
= approximately 8%

∴ rate of palm kernel increase based on 1960
figure is $\frac{2000}{24000} \times 100$
= approximately 8%

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