Palm Oil, Palm Kernel Oil and *Elaeidobius* Part 2

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In this article we shall examine how palm kernel oil (PKO) production is related to palm oil (PO) production. This matter is of considerable importance to the Technical Advisory Service who have to discuss the prospects of oils with customers.

The question is not as simple to answer as it may seem, for although both oils come from the same fruit, PO is pressed out in a matter of hours while the kernels, which give the palm kernel oil, are often stored for months. Accordingly a proportion of them is carried over from the end of one year to the beginning of the next. Also some kernels may be used for purposes other than oil extraction. So carrying out calculations on the figures from one year's production can lead to great errors.

A better way of tackling the problem is to take into account a fair number of years and divide the total PKO produced by the total PO. Even this method, however, is open to the objection that it might mask large annual variations.

Clearly the best method is to compare all the PKO and PO annual production figures with each other and any great variations in the ratio will then stand out. *Table 2* gives the production of PO and PKO for the last 15 years. *Figure 2* is a plot of the figures in *Table 2*.

Pre-weevil period (1970 — 1981)

For the 12 years before the introduction of the weevil *Elaeidobius*, graph A fits the points very well. In this period PKO production was related to PO production by the equation:

$$PKO = 0.0897\ PO - 6921 \qquad \textit{Equation 3}$$

$$r = 0.995\ (n=12)$$

or approximately $\frac{PKO}{PO} = 8.5\%$

My statistician friends at PORIM, will say that the variation in PKO production is accounted for by the variation in PO production to the extent of 99.0%. The remainder of the variation is probably due to kernel stock variations, kernel exports in the early years, counting errors, *etc.*

Post-weevil period (1982 — 1984)

For the three years after the weevil introduction (graph B) the points show a sudden increase in PKO production relative to PO and confirm the practical observations from the industry.

However the points show great scatter, no doubt due to large kernel stocks being carried over, and as we have only three points, it is impossible to draw a line with any confidence. We shall have to wait patiently for another few years for the situation to stabilize itself. For the time being the best we can do is perhaps to use the ratio of the average production in the three years which is approximately $\frac{PKO}{PO} = 10.9\%$

Summary

This article, together with part 1, shows that in the pre-weevil period (1970 — 1981) both palm kernel and palm kernel oil production could be calculated with good accuracy from PO production. The equations are:

$$PK = 0.2135\ PO - 4983$$

$$r = 0.999\ (n=12)$$

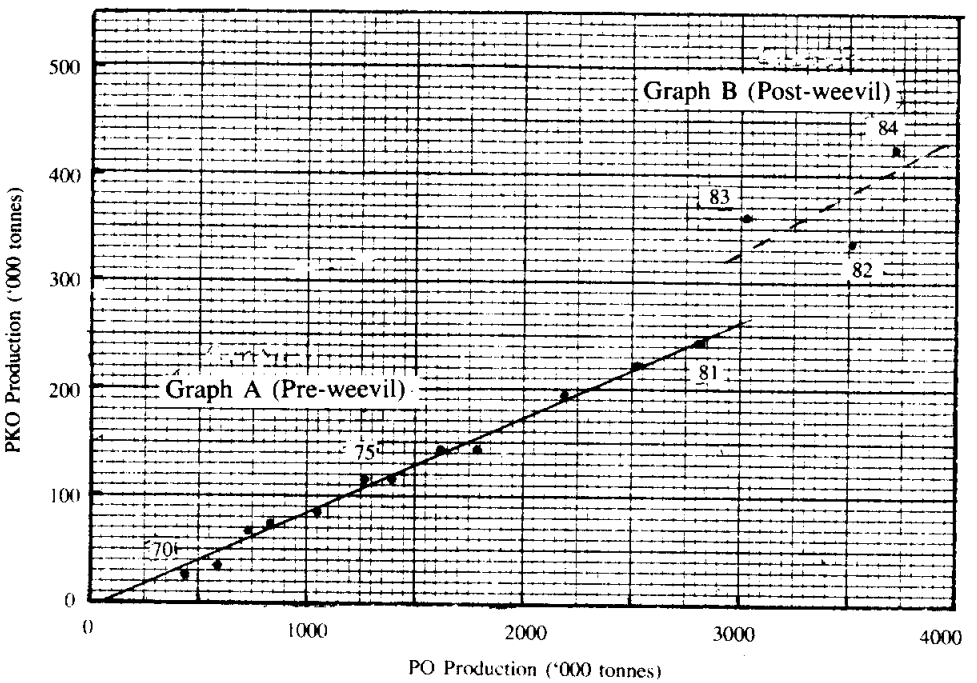

Figure 2. PKO and PO Production— East and West Malaysia 1970 — 1984.

TABLE 2. PRODUCTION OF PO, PK AND PKO, EAST AND WEST MALAYSIA

Year	Palm Oil (PO) (tonnes)	Palm Kernels (PK) (tonnes)	Palm Kernel Oil (PKO) (tonnes)
1970	431 069	92 300	25 000
1971	589 090	126 500	36 000
1972	728 958	150 600	68 000
1973	812 614	167 100	72 000
1974	1 045 975	215 400	85 000
1975	1 257 573	265 000	114 000
1976	1 391 965	281 988	117 000
1977	1 612 747	334 791	142 496
1978	1 785 525	367 540	142 294
1979	2 188 699	475 007	195 581
1980	2 573 173	557 026	222 289
1981 (weevil introduction)	2 822 144	588 783	243 354
1982	3 510 920	909 918	336 978
1983	3 016 481	834 570	360 229
1984	3 714 795	1,045 603	423 390

SOURCE : 1) PORLA
2) DEPT OF STATISTICS, K. LUMPUR
*3) *OIL WORLD (*estimates)*

or approximately PK/PO = 21.0%

and PKO = 0.0897 PO − 6921

r = 0.995 (n=12)

or approximately PKO/PO = 8.5%

In the post-weevil period (1982 — 1984) we do not have enough figures for accurate equations and for PKO especially the points show great scatter (the correlation coefficient is not significant). This was a period of flux in Malaysia. Under the circumstances the best estimate we can make is that, roughly:

PK/PO = 27.2 % and
PKO/PO = 10.9%