RELATIONSHIP BETWEEN THE WEIGHT OF HUSKED NUTS AND THE WEIGHT OF COPRA.

By E. Caulfield Kelly.

Plantation owners in the Mandated Territory of New Guinea who take a keen and intelligent interest in their properties, are probably conversant with the yield of their individual plantations, in terms of—

(*a*) Average number of nuts per ton of copra.

(*b*) Average yield of the property in terms of tons (per mensem or per annum).

When one considers, however, the very wide variation which exists on different plantations in New Guinea, in the correlation between the number of nuts dried, and the weight of copra produced, and applies this variation to an individual property, the question may well arise, as to what portions or paddocks of a property are the most profitable, and which the least productive—and why. To cite a case in point where statistics are available in the Department of Agriculture, Rabaul, one property in the North Bainings produces a ton of copra per 10,000 nuts (approximately) whilst another, on the South Coast of the same island in the Gasmata area, requires less than 5,000 nuts to produce a ton—a variation, in the coefficient, of more than 100 per cent. Still another property in the Western Islands requires 15,000 nuts per ton of copra.

Whatever may be the differences of environment as regards rainfall and soil, between the properties under consideration, it must be inferred that the major part of the discrepancy introduced is due to the variability in the size of the nuts from different palms, and more especially from different varieties of palm, in the three areas. Some varieties produce small nuts which, although present in large numbers, may produce no more copra than half the number of larger nuts from other varieties.

In the early days of European occupation of the Territory, most of the present-day fully bearing properties were planted out and hard pioneering spadework was necessary. The difficulties of the planter were both numerous and serious; hostile natives, lack of shipping facilities, lack of road communications, and slow, primitive methods of transport, made his task an enormous one. Plantations, therefore, grew by easy stages of a few hectares at a time, until a property was fully planted. Little or no attention was paid to selection of seed nuts, or to the suitability of a particular area for a specific variety of palm. Seed was obtained when required, and from whatever source available; a good deal was imported; some was purchased from native groves; and later on some was obtained from newly-established plantations in this Territory and from Papua. Most of the older properties, therefore, are a collection of small blocks of palms of different varieties, and varying slightly in age.

As the European settlement increased, and further areas were cleared and planted, the owners of the new properties looked to the newly-established plantations for their supplies of seed. Naturally, their selection fell on those properties which were yielding well, and they purchased their seed nuts accordingly. But, whereas a property might have had a satisfactory average yield, it did not follow

not only to help on the young seedlings, but to prepare for the time when there arises a struggle for existence between the old and the young trees. The soil of the planting holes for the young trees should therefore be mixed with manure. This will help the seedlings to become established quickly and get beyond the dangerous age of the unsplit leaf. Before they get beyond this age they are very liable to suffer from the drip of water from the leaves of the old trees, and being grown in the still shade of the old plantation are also more liable to suffer from fungus disease. This manuring, however, causes the roots of the old trees to find their way into the manured soil in which the seedling has been transplanted, and the struggle for existence then commences. Thus, in the second year of the growth of the seedling the whole area of the plantation should be manured and this should be continued each year till the younger trees commence to form a stem. It will be found that the yield of the older trees will fall off rapidly as the younger generation of trees gain size and strength, and when the latter have formed a stem the old trees should be cut out. The young trees will not commence to fruit as long as they are in the shade of the old trees. Thus, the owner of the plantation must be prepared to forego the crop from the plantation during the interval between the felling of the old trees and the time when the younger trees come into bearing. It is easy enough to make this recommendation on paper, but it is not so easy to carry it out in practice. Some of the more vigorous of the old trees will continue to give good crops and it is not so easy to deliberately cut out such while they still are profitable trees, but it must be remembered that the young trees have much more vigor than the old trees, and when once these are allowed to come into bearing by the removal of the top shade they will very soon make good any apparent loss.

When the old trees are felled the stumps of these should at once be cut out and burnt. The centre of the stem of these stumps is quite soft and full of sap and they will only form breeding places for the much-dreaded coco-nut red weevil and the rhinoceros beetle. After this clearance the planter must decide whether or not to continue the manuring which has had to be given. If the soil is at all fertile further manuring will not be necessary. The removal of the old trees removes at the same time a heavy drain on the resources of the soil and the roots of the old crop still left in the soil will all furnish plant food for the young crop and will tend to make the latter form a deeper root system. The removal of the old crop also will render the operations of cultivation and weeding much easier and more thorough, and this in itself will tend to develop the root system of the young plantation.

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