COPRA MANUFACTURE

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It pays to make good Copra

"IF a thing is worth doing it is worth doing well." This applies to most things in life, and in this particular instance to the production of copra.

Formerly under the system of competitive sales in the Colombo Sales Room it was possible to obtain a special price for superior copra of "estates" quality. Unfortunately during the war, the system of bulk buying by the Ministry of Food replaced this system and, as a result, some degradation in the quality of Ceylon copra was inevitable. Bulk buying has now ended, and to-day marketing is again through local dealers, brokers and shippers, under which system the buyer has the last word. He may sometimes give a premium for superior copra of estate quality, if the quantity offered is sufficient. Conversely, if copra is offered in an under-dried condition, the penalty imposed will be quite arbitrary. There may also be arbitrary deductions for loss in weight in transit and for mixed-quality.

Uniformly and properly dried copra is a reliable product and no arbitrary penalty needs to be imposed on account of irregular quality, irregular drying, excess moisture or because of loss in weight in transit. With dry copra if it is alleged that there is loss in transit to Colombo, you will know definitely that it is due either to faulty weighing or to pilferage, and you can act accordingly. With under-dried and mixed copra you have to accept the delivered weights and arbitrary penalties without question.

The method of buying in Ceylon is based on three internal or domestic grades of quality, No. 1, No. 2, and No. 3 (see *Ceylon Coconut Quarterly*, Vol. 1, No. 3). If you patiently supervise and improve your methods of production, you can produce more No. 1 and less No. 2 and No. 3 copra. The Colombo prices of these three grades on 6th June, 1951, were as follows :—

No. 1	Rs. 240 per candy
No. 2	Rs. 226 per candy
No. 3	Rs. 212 per candy

Obviously it will pay you to make as much No. 1 copra as possible. The production of copra can be considered in three stages: (1) Harvesting, (2) Sun-drying and pre-treatment, (3) Kiln drying.

Watch Your Crops

If you harvest your nuts correctly, you get a greater weight of thick copra, and whiter and harder copra, whereas if you pick under-ripe nuts or neglect to collect your crop till the nuts are over-ripe, you either get thin rubbery copra or else thin, dark copra, *i.e.*, No. 2 or No. 3 grades. Nuts should be picked regularly once every two months and not more than two bunches should

be cut down. These nuts should be placed in heaps in the field and allowed to mature for two or three weeks before husking. All fallen nuts should be sent for immediate curing, otherwise they will germinate in the heaps and produce inferior copra. (Nut storage is not necessary when nuts are harvested ripe and brown).

Husked nuts must be covered with cadjans, or else the exposed nuts on top of the heap will be cracked open by the heat of the sun, and will rot. Nuts should preferably not be cracked open in the field unless this is unavoidable, and they should be loaded most carefully into the carts in order to avoid cracking them.

When nuts are split open at the kiln side an important thing to watch is the number of freshly-opened nuts which are rotten. A record should be kept in the office of the percentage of rejections from each pick because if the amount is over 2 per cent. it is indicative of physiological upset or plant sickness, due to faulty or neglected manuring, neglected cultivation or unsatisfactory sub-soil conditions in the field from which the nuts were harvested. If the rejections are high, it is almost certain that the rest of the copra is also affected and that the yield per acre and nut sizes will be unsatisfactory. If this important warning is acted upon, crop yields can usually be improved.

Once the nuts are split open, the wet coconut meat is contaminated by exposure to the atmosphere, and it will rapidly deteriorate just like other undried foods, such as milk, meat, fish or eggs. It is necessary, therefore, to reduce to a minimum the period of delay between splitting the nuts and applying heat. The importance of this is not always realised; for instance, nuts are cracked and put in bags one day and taken to the kiln for drying the following day. It is impossible to obtain much No. 1 copra where this is the practice.

The interval between splitting open and drying must not exceed six hours; this interval of time is inclusive of the time taken to split the nuts, to bring them to the kiln, and to put them on the kiln, and also of the length of time that the material remains cold on the kiln platform before the heat of the fires reaches the product. This last factor can be as much as four hours, on a correctly loaded kiln, and six or seven hours, if it is overloaded. A kiln, which is only used occasionally should be warmed up before it is loaded with nuts; otherwise the copra remains cold much longer.

The following figures illustrate the progressive deterioration that occurs with increasing delay in applying heat to the product.

Appearance of resulting Copra

Total delay before drying	Smooth and White	Off-white to dirty	Reddish to Red-black
Nil	82%	18%	0%
2 hours	80%	20%	0%
4 hours	75%	25%	0%
6 hours	65%	29%	1%
9 hours	61%	35%	4%
12 hours	36%	42%	22%
24 hours	10%	48%	42%
48 hours	0%	17%	83%

The reason for this deterioration is that wet exposed surfaces of coconut meat, originally hard and firm, are quickly contaminated by air-borne bacteria. The first visible symptom of such attack may sometimes be observable on some pieces about six hours after splitting as glistening, glassy plates on the hard, white surface of the coconut meat which can be seen by a reading glass or lens. Subsequently greyish dull-looking patches develop which feel soft and smooth. After 10 hours the surface begins to feel gummy and later still slimy ; ultimately the slime becomes a viscous liquid with an alcoholic smell which in some extreme cases can be poured out from the half nut, like treacle.

The important thing is that even after the slightest attack by bacteria a proportion of the resulting pieces of copra is yellow and dirty with adhering particles of husk and smoke as you can see by reference to the preceding table. Once the surface of the pieces of wet coconut meat have become soft and gummy through long exposure a penetrating smoky redness is bound to develop as the copra dries.

This redness is not due to scorching ; it is produced even though the processing in the Kiln is perfect. If the processing is also unsatisfactory, the copra will continue to soften and rot under the continued action of bacteria, after which a succession of moulds and insects will complete the deterioration. Such discoloration cannot be corrected by any treatment with bleaching agents. The spoilage is permanent and the product is liable to further deterioration in storage.

(To be continued)