Ceylon Cocon. Quart. (1967) 18,

THE COCONUT INDUSTRY OF THE BRITISH SOLOMON ISLANDS

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INTRODUCTION

This territory, which is administered as a Protectorate by the British Government, depends on copra, the only exported coconut product, for more than 90% of export earnings. This tiny country (popl.approx. 140,000) consists of a cluster of larger islands of mainly volcanic origin with a series of uplifted coralline benches around their edges, a few active volcanoes, many small islands, and some outlying atolls. (See map). The total land area is only 11,500 square miles, and this includes a high proportion of rugged mountains.

Most areas of the Solomons receive high rainfall which is more intense during the North West Monsoon season (December to April), but which is also fairly well distributed during the period of the South East trade winds, (April to November). Total annual rainfall in most coastal areas is around 100 inches.

HISTORY OF THE INDUSTRY

The Coconut palm thrives in the Solomons. It was undoubtedly being grown here for food by the indigenous people when the Spanish navigator Mendana discovered these islands in 1568, but it was only with the development of a world demand for copra that a large acreage of palms developed. In the late 19th century copra was bought from native villages and then in the 1890s British planters began to settle here. After 1900, when many Solomon Islanders were repatriated from the Australian Sugarcane fields, a rapid development of coconut plantations occurred. The acreage of coconuts continued to expand up to 1930 when the industry was affected by the world economic depression. An estimated 60,000 acres of coconuts were then in production, most of these being under British ownership. Copra exports stood at around 22,000 tons but reached a peak of 25,074 tons in 1936/1937.

The Pacific war interrupted copra production completely for 4 years and it was only in 1959 that the prewar average level of production was reached. The postwar production of copra rose further up to 1964 but has fallen off again since then as the accompanying graph shows. (The data for this graph were taken from Annual Reports of the Department of Agriculture, and from an annual Departmental Publication entitled " The Copra Industry ").

FACTORS AFFECTING PRESENT COPRA PRODUCTION

The principal reason for the low production in 1966 is almost certainly because of the great age of the main plantations which are between 50 and 60 years old. Many of these are declining rapidly and on some a high proportion of trees has ceased bearing any nuts.

Copra production, which in pre-war days was almost entirely from expatriate owned plantations, is now shared about equally between indigenous small-holders and plantations.

Whereas plantation production has been almost steady for 10 years the small-holders' production has risen from 8,440 tons in 1956 to a peak of just over 13,000 in 1964. The small-holders' sector of the industry is scattered widely through the islands however and suffers from the draw-backs of poor sea communications. Production in certain areas depends very much on the regularity of calls by copra collecting trading boats. Some of the shortfall of small-holder production in 1965 can be attributed to lack of shipping to collect from the more remote areas but production was worse in 1966 when the shipping position had improved.

Almost none of the old plantations have replanted areas in production but replanting on the main plantation group, owned by Unilever, is now under way. There are no comprehensive statistics on area and nature of small-holdings, but those which have been surveyed show a high proportion of new plantings. Many of these plantings are on poor soil or abandoned garden land however, so that only a low level of production will be achieved. The best coconut soils were selected by the original plantation operators, but these soils are now rather degraded after 50 or more years of coconut culture. There is only one estate in the Solomons where fertilizers have been regularly applied and that was only recently, so it is not surprising that the production of old estates is very low.

The most productive soil types are a volcanically enriched, freely drained clay soil over porous uplifted coral limestone, and a shallow sandy gravel soil formed on recently uplifted coral reefs, which is enriched with organic matter from a dense cover of bush. Not all soils of the above types are highly productive, but the best of these two types have supported coconut palms producing well over 1 ton of copra per acre without fertilizer.

RESEARCH

Agronomy experiments have been carried out only since 1952, but these are confined to the Unilever estates in the Russell Islands. A severe deficiency of potash was demonstrated by these experiments but the economics of fertilising old palms with potash are marginal. Fertilizers are expensive as they must be imported from Australia or Europe. Added to this copra Prices fluctuate with the world market because all copra is exported. An export duty on copra is also levied by the Government.

In 1960 research was expanded when the Government entered into a Joint Coconut Research Scheme with Unilever. Attention was focussed mainly on to the nutrition of young palms on new and replanted areas. A report on this work was made by Foale (1965 and 1966). Further results continue to show economic responses to potash fertilizer applied to replanted areas in increasing doses from the year of replanting onwards. Mulching seedlings in the field with coconut husks produces taller young palms in the field but the effect on production is not yet known.

A great deal of attention has been given to foliar analysis for the location of nutrient deficiencies. Annual foliar analysis is done on nutrition trials to provide a tie-up between fertilizer application rate, change in foliar levels of nutrients, and response of the palm. A detailed investigation of seedling growth has shown that early transplanting from the nursery is essential if maximum growth is to be achieved. A slight response to seed size both within and between genotypes was also demonstrated (Foale, 1967a & b, in preparation).

In 1965 a breeding programme was implemented by the newly appointed Plant Breeder. This aims principally at the production of hybrid seed from a cross between locally available tall type palms and dwarf palms originating from Malaya. Although no such hybrids are in production yet, in the Solomons, the local performance of progeny of hybrids between Fijian dwarf (*Niu Leka*) and Malayan Dwarf (Marechal, 1928) has been outstanding. Sufficient hybrid seed for planting up to 1,250 acres of palms per year of any of three dwarf × tall combinations will be available in the early 1970s.

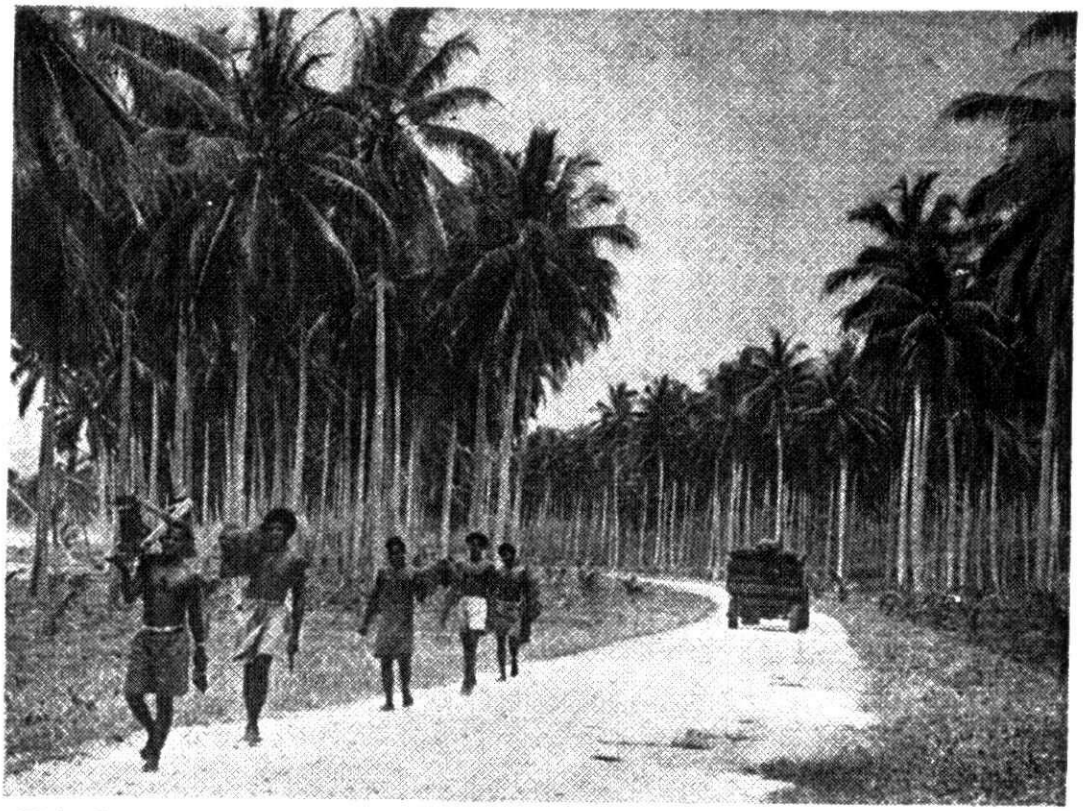


PLATE I. Solomon Islands copra cutters returning from work in the field. The meat is removed from split nuts in the field and transported in gunnies to the driers.

(E. W. P. Marriot, photo).

PLATE 2 A high yielding 5 years old Malayan by Local Tall hybrid on newly cleared forest land where the soil is a volcanically enriched deep clay over coral rock strata.

(M. A. Foale, photo).

PLATE 4 A selected F_3 progeny of the hybrid dwarfs of Marechal (1927).

(M. A. Foale, photo).

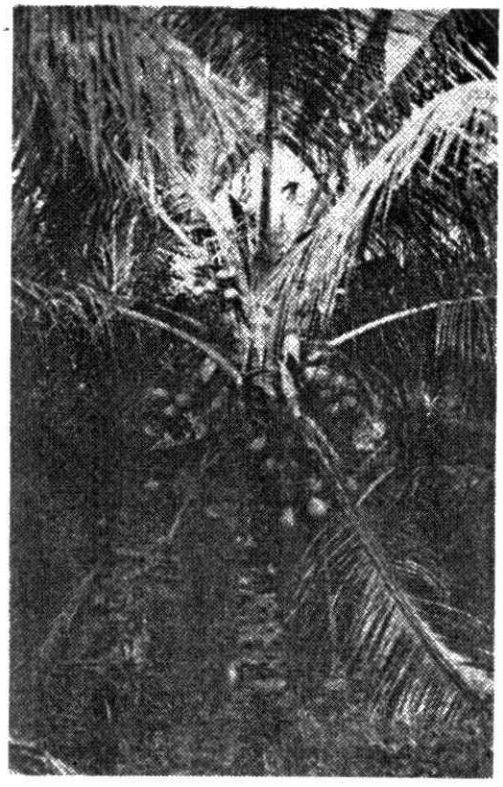
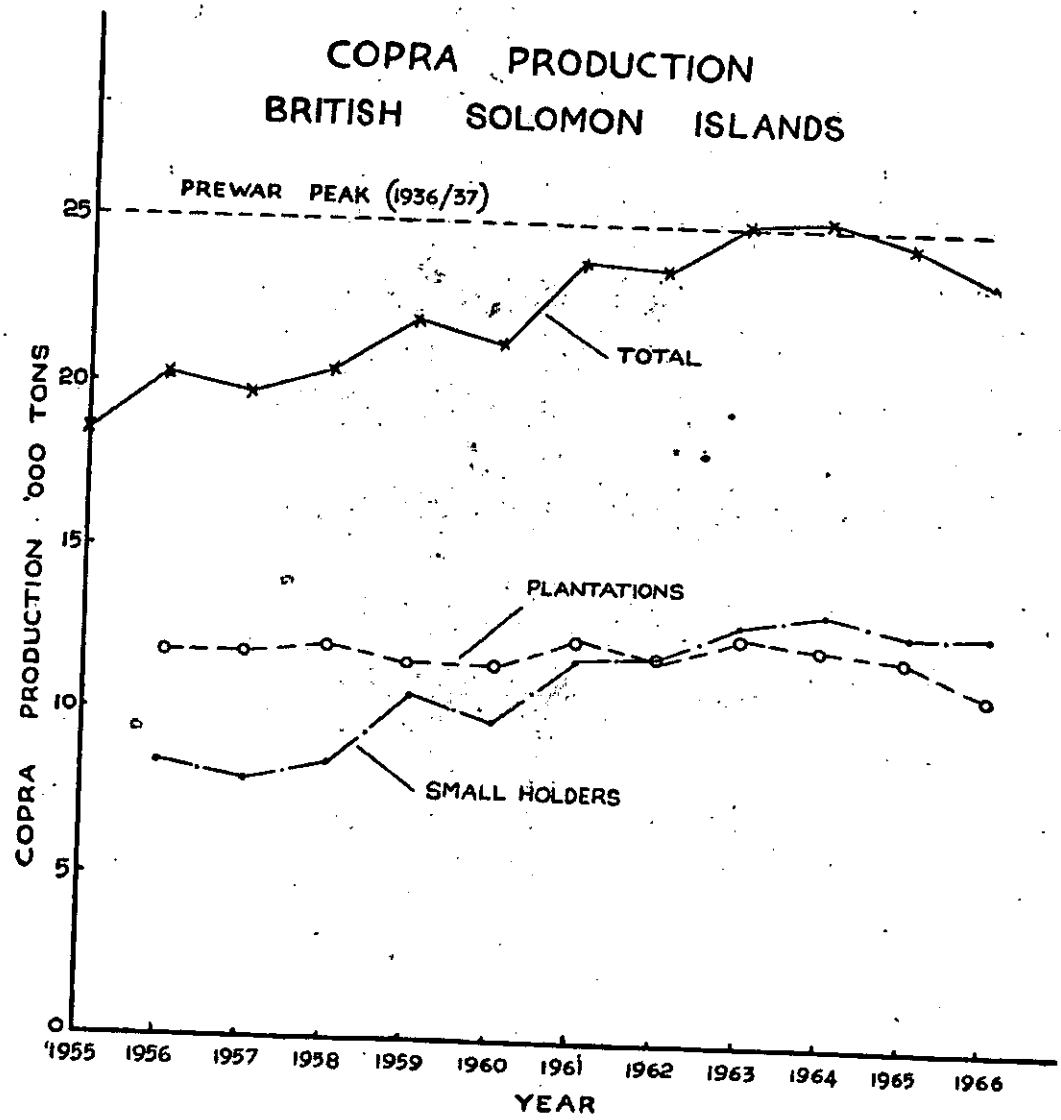


PLATE 3—A Rennell palm not yet 5 years old, in a Variety trial.

(M. A. Foale, photo).


COPRA PRODUCTION
BRITISH SOLOMON ISLANDS
PREWAR PEAK (1936/37)
TOTAL
PLANTATIONS
SMALL HOLDERS
COPRA PRODUCTION '000 TONS
0
5
10
15
20
25
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
YEAR

Trials are being undertaken to test tall × dwarf hybrids and also tall × tall hybrids, on the two main soil types already described. In the meantime very large differences in early yield performance of the main tall types have been demonstrated. In 1966, the 6th year after planting into the field the following production figures were recorded on a 20 acre area of newly cleared forest of the clay soil type.

	Yield Cwt/Acre
Rennell	18.0
Samoan	8.5
Solomon Islands	8.0
Malayan	5.8

These varieties have been described briefly by Whitehead (1966).

There is evidently great scope for yield improvement by selection within these types. The long-term aspect of the breeding programme includes selection of elite palms for crossing and selfing, with a view to raising the potential yield performance above that of hybrids between the present unselected populations.

Cultural and production methods on large plantations compare favourably with those of large copra producing countries but the major part of production comes from less advanced small farms. The proportion of production in the hands of smallholders will rise further as some of the foreign owned plantations fade out of the picture. This widely dispersed smallholder sector is in the hands of mainly illiterate and very conservative farmers who are virtually beyond the reach of the fruits of research, except perhaps for the planting of genetically superior seed. As the younger generation of educated farmers begins to take over in the more distant future, however, the level of production of small-holdings may rise. In the meantime the prospects are good for high productivity on those larger plantations which are capitalising on present knowledge of both improved types and improved nutrition for them. A steady rise is hoped for in overall copra production, but in such a scattered country of varying soils and unreliable transport it is rash to make predictions of what future developments will occur in the industry.

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REFERENCES

FOALE, M. A. (1965) : " Nutrition du jeune cocotier dans les isles Russell (Archipel des Salomon) " Oleagineux, 20 : 585-588.

FOALE, M. A. (1966) : " Nutrition of young palms in the Russell Islands, B.S.I.P." Proceedings of F.A.O. Technical Working Party on Coconuts, 2nd Session, Colombo, 1964, Publ. by F.A.O., Bangkok.

MARECHAL, H. (1928) : Fiji Agricultural Journal. pp. 16-45.

WHITEHEAD, R. A. (1966) : " Sample survey and collection of coconut germ plasm in the Pacific Islands, 30th May to 5th September, 1964 ". Ministry of Overseas Development : Overseas Research Publication No. 16. H.M. Stationery Office, London.