

COCONUTS IN 1951

By F. C. COOKE,

Director, Coconut Research Institute of Ceylon.

IN a review of the industry for the year 1951 four facts are outstanding. The tonnage of exports of coconut products reached an all-time record (269,629 tons); the value of exports, in spite of falling prices, reached an all-time record (Rs. 372,526,821); the gross revenue from coconuts reached an all-time record (Rs. 118,404,112); but the desiccated coconut market collapsed owing to the reckless and uncontrolled expansion of that industry without adequate sales preparation to create increased demand for the product in consuming countries.

Owing to the intense competitive demand for nuts by the mills, the retail price of coconuts in the Colombo market steadily rose to a peak price of about 50 cents, with the result that domestic consumption and the exports of fresh coconuts both declined. It therefore does not at all follow that because exports have increased in volume, that the production of coconuts has necessarily increased. Nevertheless weather conditions have favoured good crops and it is probable also that improved cultivation, water conservation and manuring during the sustained period of boom prices has resulted in considerably enhanced yields from previously neglected areas. A tribute must be paid to those growers who have ploughed back a large part of their profits.

The quantity and value of coconuts and coconut products exported during the year 1950 are given below with the figures for 1949 and 1951 for comparison:—

				Exports in Tons		
				1949	1950	1951
				Tons	Tons	Tons
Fresh coconuts*	...	...	...	15,442	10,714	8,124
Coconut oil	...	...	...	89,184	75,717	109,782
Copra	...	...	...	21,575	21,117	19,346
Desiccated coconut	...	...	...	15,602	44,909	39,771
Poonac	...	...	...	8,583	8,942	20,102
Mattress fibre...	...	...	...	32,242	43,692	47,028
Bristle fibre	...	...	...	9,420	8,928	12,148
Coir yarn	...	...	...	2,839	4,353	4,406
Coir rope	...	...	...	181	167	246
Coir manufactures	...	...	...	392	317	236
Coir mats	...	...	...	10	10	17
Coconut charcoal	...	...	...	1,462	4,063	8,423
Total exports	...	...	...	196,932	222,928	269,629

*Number converted into tons.

Value of Exports

	1949 Rs.	1950 Rs.	1951 Rs.
Fresh coconuts	4,584,303	4,050,604	3,019,871
Coconut oil	121,326,750	127,374,147	227,061,213
Copra	21,567,197	25,435,672	27,059,451
Desiccated coconut	25,499,662	95,237,956	65,686,845
Poonac	1,635,305	2,532,251	6,273,945
Mattress fibre	8,470,055	15,898,254	24,136,097
Bristle fibre	4,591,077	4,949,434	10,525,594
Coir yarn	2,129,765	4,477,003	6,335,796
Coir rope	118,223	126,806	248,858
Coir manufactures	300,070	288,884	397,159
Coir mats	20,242	17,811	26,634
Coconut charcoal	155,400	617,340	1,755,358
	190,398,049	281,006,162	372,526,821

Prices.—The year 1950 was a period of steadily rising prices; the peak of the market was reached in March, 1951, when it is said that one parcel of copra changed hands in Colombo at the all-time record price of Rs. 350 per candy. With prices of all coconut products now shewing steady declines, there is every indication that the coconut industry has passed the peak of the current trade cycle. The declines since March were as follows:—

Average Prices	March	December
Copra	Rs. 311 to	Rs. 202 per candy
Coconut oil	" 2,154 to	" 1,300 per ton
Desiccated coconut	77 cts. to	53 cts. per lb.

Revenue.—Export duties, collected during the year, amounted to Rs. 47,630,312 and Excise revenues on arrack and toddy brought in Rs. 70,773,800, so that the total direct income, obtained by Government from one million acres of coconuts, amounted to Rs. 118,404,112, which is equivalent to Rs. 118 per acre. In the same year, the cess for research was equivalent to only 22 cents per acre.*

The new sliding scale of duties which was announced on December 8, 1951, will, with falling prices, result in a big drop in Government revenue as the following figures show:—

Duties	Prior to 8-12-1951	28-1-1952
Copra	Rs. 400 to	Rs. 256 per ton
Coconut oil	" 325 to	" 205 per ton
Desiccated coconut	10 cts. to	" 6.09 cts. per lb.

Weather.—The rainfall during the year has been unusually heavy. Four widely separated stations in the Chilaw district have each recorded totals which are in excess of the average and, it is apparent that the North West Province as a whole has this year experienced the heaviest precipitation of rainfall for the past 20 years.

* In the United States, industries spend between $\frac{1}{2}$ to 6 per cent. of their income on research, depending on the nature of the industry.

Crop.—With a few exceptions the total crop for the year 1950 exceeded the total crop for the year 1949. Last year the rainfall has been very much better than in 1949, and it is considered that the crop returns for the current year may be even better than last year.

Planting Progress

The work of rehabilitating the coconut industry is progressing steadily. High-grade Seedlings, produced in the nurseries of the Coconut Research Institute and in Co-operative nurseries, have been sold to the public at subsidised prices, these operations being maintained by an allocation from the vote of the Department of Agriculture. The sums voted during the past three years and for the current year are as follows :—

							Rs.
1949/1949	...	...	...	...	...	...	152,448
1949/1950	...	...	...	...	...	...	179,300
1950/1951	...	...	...	...	...	...	410,000
1951/1952	...	...	...	...	...	...	520,500
							<hr/>
						Total	1,262,249
							<hr/>

About $\frac{1}{8}$ th of the allocation is returned as revenue from sales.

In the past three years, 23 nurseries have been established and selected high-grade planting material for approximately 15,000 acres has been issued. On the current year's programme, a further 10,000 acres will be replanted, making a total of about 25,000 acres since the inception of the project.

During the year under review, this difficult work has been developed smoothly and there have been no complaints from the public regarding the quality of the seedlings or their distribution. Demand has exceeded supply and some customers have been refused and been disappointed that their spot orders for seedlings could not be met.

Coconut Development Board

A joint meeting of representatives of the Low-Country Products' Association and of the Planters' Association of Ceylon met on October 22, 1951, to consider proposals for assistance to the coconut industry as a whole. The main purpose was to ensure that continuance of rehabilitation of the coconut areas at the steady rate of 15,000 acres per annum and if possible to increase the total acreage by new planting in order to meet the growing domestic demand for coconuts due to increase in population and to maintain employment in the dependant coconut industries. It is certain that if the price of copra continues to drop that the required replacement rate cannot be maintained by voluntary effort alone; further Government assistance will be necessary.

The proposed Board would consider the following problems and make necessary representations to Government and implement its decisions therein :—

- (1) The problem of senile and useless coconut properties, the owners of which are unable to rehabilitate them because of inadequate income.

- (2) The problem of neglected, degenerating and abandoned coconut properties the owners of which are untraceable or unwilling to maintain their lands in fair condition.
- (3) The problem of divided ownership, and the unification of fragmented and uneconomic properties into sound workable units.
- (4) The problem of maintaining under coconuts the deteriorating properties in the marginal areas (Puttalam, Batticaloa and Mannar).
- (5) The opening-up and development of new areas under coconuts and the provision of communications and other facilities where the country is undeveloped.

The Coconut Research Institute of Ceylon

Following the five-fold increase in the cess on coconut products, which was gazetted on October 21, 1950, the Coconut Research Scheme after 21 years' existence was finally established as the Coconut Research Institute of Ceylon by the Coconut Research Amending Act No. 31 of 1951.

With the additional funds now available, the Animal Husbandry Division to study the inter-relationship of coconuts and livestock has been added to the organisation, and a Pathological Division to deal with pests, diseases and undesirable weeds, associated with the coconut palm, has been approved by the Board. An attempt made to start an Education Division was abandoned owing to lack of staff, but five trainees were given a six months' course in the theory and practice of coconut estate management. A conference of delegates of Coconut Producers' Co-operative Societies, held at the Institute in October, stressed the need for the appointment of an Education Officer to organise regular classes in coconut cultivation for small growers. The Planting and Advisory Services are to be reorganised and consolidated as the Field Division of the Coconut Research Institute.



One Acre of Coconuts enclosed as a Poultry Farm.

The *Ceylon Coconut Quarterly* continued in regular publication and "*Pol Sangharawa*," a coconut annual made its first appearance. Six new planting leaflets were issued during the year.

A special Committee of technical officers was appointed by the Coconut Research Board to investigate and report on the marginal coconut-growing areas and its report was duly submitted to Government. A reconnaissance survey of potential new coconut-growing areas was carried out by a team of four senior officers of the Institute and its report was submitted to the Land Utilisation Board in August.

The Director was co-opted to the joint L.C.P.A./P.A.C. Committee which considered the question of the rehabilitation of the Coconut Industry and produced the proposal for the formation of a Coconut Development Board.

With two senior officers on overseas study leave, these new activities and developments have given much additional work to the remaining officers who have responded well.

Botanical Division

Further work has been done in support of the Coconut Replanting Project. In the research nursery, demonstration plots are being maintained to show visitors the results of the investigations carried out in 1950, *viz.* effect of storing and soaking seed-nuts; correct depth and method of laying down seed-nuts; and the result of mulching and manuring seed-beds. Under-planting and replanting experiments, with total or partial replacement and non-removal of senile palms, have been maintained at Bandirippuwa and Olaboduwa.

Seedlings, produced by artificially pollinating and crossing different varieties of palms, have been planted out in the field in order to compare the vigour and performances of the various hybrids. Records of high-yielding mother palms on various estates and of the dwarf palms at Ratmalagara are continuing.

The Latin-square experiment to compare the palms produced from selected and unselected seed-nuts from high-yielding, low-yielding and mixed palms is now in its 12th year. The indications are that selected seedlings, produced from selected seed-nuts obtained from high-yielding mother palms, give the highest yields of nuts and copra.

Division of Soil Chemistry

Work in support of the Coconut Replanting Project is continuing. The manurial experiment on underplanted young palms at Letchemy Estate has clearly demonstrated the futility of replanting without manuring. At Ratmalagara, the factorial manurial experiment on young palms, now in its third year, is already showing visible differences between the various treatments. An outbreak of the fungus, *Helminthosporium incurvatum* occurred in the plots, manured at the higher level of nitrogen. The various plots have been labelled, so that visitors may watch the progress of this important experiment.

The manurial experiments on mature palms at Bandirippuwa and Ratmalagara are now in their 8th and 16th years respectively. The various plots have been labelled, and the results of lack of manuring and unbalanced manuring may clearly be seen. At Bandirippuwa, in view of the marked response to potash, the potash levels have been stopped up; at Ratmalagara, however,

potash again failed to give a response, and this has been found to be due to the high content of exchangeable potash in the soils there. Phosphoric acid continued to produce a marked response on this estate.

The experiment on methods of application of manures has completed its second year but it is premature to express any opinion regarding the response to broadcasting manures as compared with their application in circular trenches.

Division of General Chemistry

The empirical treatments of tapering palms now in their second year are continuing. Some improvement in the affected palms on two estates is reported; elsewhere the deterioration has only been arrested by the treatments. The Chemist is on study leave in Australia, where he is taking a post-graduate course in Plant Chemistry, with special reference to the need for minor and trace-elements and the effect of toxic elements on plants. When he returns, the problem of tapering disease of coconuts will be tackled on new lines.



Clean, healthy and docile Sinhala Cattle on Bandirippuwa Estate.

Pilot experiments to indicate the need for minor and trace-elements, in addition to the major plant nutrients (N.P.K.) and to serve as the basis for large scale trials have been commenced. It is already evident that for thin cinnamon soils, a simple N.P.K. mixture alone is not enough. The coconut seedling treated with a mixture of major, minor, and trace-elements plus a hormone, and another treated with a mixture of farmyard manure and husk ash are showing equally good growth and very healthy leaf development, whereas the N.P.K. treated seedling is smaller. As a result of these indications a middle scale experiment has been started in which the various chemical plant nutrients are applied in various combinations so as to determine which minor and trace-elements are particularly necessary to the coconut palm.

The effect of salt on coconut palms is being studied to determine (a) whether the coconut palm is a semi-halophyte, and (b) whether brackish waters may be used for watering coconut palms during periods of drought. The indications of a pilot experiment are that young seedlings appear to be benefited by the monthly additions of granulated salt; this now requires to be confirmed by large-scale trials. The rate of application was 1 lb. per palm per month. Secondly, the daily application of undrinkable brackish well waters, containing less than 1 per cent. of salt appears to be definitely beneficial to palms in dry areas, but the direct application of lagoon waters, without dilution, is harmful, because of excessively high salt content, which in the dry season reaches as much as 4 per cent.

The possibility of using dwarf palms as a commercial source of toddy has received further consideration. The yield of toddy from a dwarf palm is on average only half that from a tall palm.

In buying and selling mattress fibre, the moisture content is of course an important consideration. A compressed sample of dry mattress fibre kept in a moist atmosphere at normal shade temperature absorbed moisture up to a maximum of 16.5 per cent. in 14 days. When it was sprayed with water and dried superficially to remove the excess it retained 3.5 per cent. more water. Thus during shipment and as a result of exposure to rain, well-dried coir fibre can gain in weight by as much as 20 per cent.

Division of Animal Husbandry

A uniform herd of black, cross-bred, Sinhala cattle, consisting of a stud bull and 12 young cows has been acquired and have already produced 3 calves. The cows are giving an average of 3 pints of milk per day each.



The condition of the Animals fed on concentrates (right) and those fed on pasture only (left).

Half of the herd are being fed on concentrates in addition to grazing, while the other half are simply being grazed. These two groups of animals are housed separately at night in order to determine whether the different feeding causes any difference in the quality of farmyard manure. Body weights, temperatures and pulse counts of all the animals are being regularly recorded. The condition and size of the animals fed on concentrates is already superior to that of the other group.

A multiplication area or nursery for various herbs, grasses and legumes has been established. *Bracharia miliformis* has been found to be the most easy to establish under the conditions on Bandiripuwā Estate. It seeds profusely but unless grazed at frequent intervals tends to run to seed and become woody. Molasses grass, *Melinis minutiflora*, grows well and seeds well, but does not stand up so well to grazing and tends to die back. The legume, *Stylothanes gracilis* is difficult to establish, but once established grows profusely and grazes well. Five acres of pasture have now been established, and selective weeding of 6 acres to improve the herbage is being maintained.

One acre of coconuts has been enclosed as a poultry farm to determine whether the palms improve under such treatment as compared with a one acre control plot. The manure from the poultry is converted into farmyard manure in the poultry shed and this is applied to the palms as a mulch. Records of costs, egg yields and the crop of the palms are being maintained.

Pathological Division

An increased number of inquiries, relating to pests, diseases and weeds, has been received and the work of investigating and answering these inquiries has been taken over by the Botanical Division instead of referring them all to the Pathologist of the Department of Agriculture, as has hitherto been the practice.

A special block has been established in the research nursery, where the effect of new fungicides, insecticides and weedicides will be tried out. "Paracide," petrol and mixtures of naphthalene and petrol have been found to be effective for the control of termites. Experiments with repellants against the coconut beetle have been commenced.

The majority of the inquiries received concern the subjects of coconut leaf scale (*Aspidiotus*) and premature nut-fall, and investigations of these important problems are in progress.