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The Importance of Coconut as a food

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WHEN one housewife meets another these days, one of the topics of conversation is invariably the high price of coconuts. For practically 89% of the population of Sri Lanka, coconut oil is the only cooking fat available and according to the nutritionists the only source of fat for the majority of the population who depend on it for a large proportion of their calories. Coconut is therefore an essential item in our diet.

Coconut Production and Consumption

There are about 7.3 million hectares of coconut in the world yielding approximately 30,000 million nuts per year of which about 25,000 million are from Asia. Most of the countries of Asia consume about 50% of their production with the noted exception of the Philippines, the world's largest producer of coconuts, which consumes only 3% of its crop. In Sri Lanka we consume 60% of our crop. Thailand and India are said to consume 90% and 85%. But as far as per capita consumption can be assessed Sri Lanka which produces 2,600 million nuts and consumes 60% leads the way.

The figures relating to production and consumption are very approximate and depend the one on the other. For example, according to the Department of Statistics Survey[2] the average consumption per head is estimated annually at 125. (90 as fresh nuts and 35 in the form of oil). This figure coupled with export statistics is used to calculate the production. However, the consumption pattern is bound to vary with the steep rise in prices.

Food values of the Coconut Kernel

The coconut kernel has been described as the complete food as it contains fats (36%), protein (4.5%), carbohydrates (13%). It is somewhat deficient in minerals and vitamins. For Sri Lankans at whatever level of income, the coconut is an integral part of the diet, be it breakfast (pol sambol, pittu, etc. or margarine) or lunch and dinner (milk for curries, oil for frying.) There is no substitute for coconut in our food at present.

Coconut oil is said to be one of the most digestible of fats, not excluding butter. It contains glycerols of saturated and unsaturated fatty acids, such as caprilic, lauric, myristic, palmitic, stearic, oleic and linoleic[3]. It is the presence of the saturated fatty acids, similar to that respect to animal fats, that lead to the charge that coconut oil is injurious to the health due to formation of cholestrol in the body. Whether this would be as injurious for people who take it in limited quantities and have no other source of fat is open to question.

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Carbohydrates are present as sugars, mainly sucrose (6–7%) and the balance mainly as cellulose (crude fibre).

Coconut protein has received a great deal of attention from biochemists the world over as coconut is found in areas where protein deficiencies are common. The protein content of the kernel is small (4.5%) as compared to its oil content, but contains all the amino acids essential to human growth. The following amino acids are present in coconut proteins—lysine, tryosine, phenylalnine, tryptophane, cycsteine, methionine, leucine, valine, isoleucine, threonine, histidine, and arginine. According to Hagenmeir *et al*[4] 200,000 tons of protein could be extracted annually from the world production of coconut.

When oil is manufactured from copra, the protein is left behind in the copra cake or poonac which in Sri Lanka goes to feed the livestock industry. In the Philippines, most of the cake is exported and as they consume very little fresh coconut, protein from the kernel is not available to the human population. Therefore in the Philippines there is a great deal of interest in extracting protein from the kernel and feeding it to the population in some other form. But this is not necessary in Sri Lanka as we eat so much fresh coconut.

Protein extract foods include coconut flour obtained from the residue left after processing the fresh coconut kernel to obtain oil (as distinct from the copra process). An instant skim milk powder (containing 30% protein) and Coco syrup (19% protein) have been developed at the Coconut Foods Pilot Plant in the Philippines. However, none of these processes have proved economically viable as yet, and remain in the experimental stage.

Wastage

Although Sri Lankans consume so much coconut they also waste a great deal. The wasteful methods practised by the Sri Lankan housewife have been commented upon over and over again. Grated (scraped) coconut is extracted with water by squeezing manually. The percentage of oil extracted in this way will vary with each person's ability or industry, but is only 50–60% and the same for the protein. Therefore nearly half the oil and protein is thrown out with the residue. The culinary habits with regard to coconuts have changed with the increase of coconut production over the century. The cultivation of coconuts on a large scale in plantations started around 1890, but at the turn of the century coconut was still a fairly scarce commodity and a luxury. This was particularly so for the hill country and some people still remember the way their grandmothers would grind the coconut and put into the curry as they still

do in India. With the increase in coconut cultivation and the availability of plentiful supplies at low prices, the practice altered and only the milk is now used in curries. Upto recent times few people would consider grinding coconut even for the purpose of extracting more milk. With today's exhorbitant prices a number of people are going back to these old methods and this should be encouraged.

Why the High Price?

Very simply, the scarcity of nuts is the cause of high prices. Scarcity is due to decreasing yields, increasing population and competition with industry.

Industry

Although coconut is so important as a food item there is also a vigorous industry based on coconut kernel alone which supplies approximately Rs. 400 million in foreign exchange to the country. About 38% of the coconut crop of Sri Lanka (this figure will vary from year to year) is processed into copra, which in turn is processed into oil and poonac and approximately 14% into desiccated coconut. Practically all of the desiccated coconut manufactured is exported, while the export of oil varies with external and internal demand and production. In times of scarcities there is a strong competition for nuts between the fresh nut consumers' market and the industry.

Factors influencing Yield

There are many factors influencing yield. According to Child[5] "of all factors which influence coconut yield, rainfall is the most important." The world wide drought which resulted in the failure of several monsoons has had its effect on the production of coconut, not only in Sri Lanka, but throughout the world. Studies conducted by the Coconut Research Institute on their estate at Lunuwila and by others elsewhere in the world show that drought affects the crop of about 12 months later. The effects of the severe drought such as was experienced last year will be felt in this year's crop, both in terms of number and weight of the kernel. The Coconut Research Board's estimate is that there will be a reduction of 23.5% in the crop in 1977 as against 1976.[6]

The rainfall patterns over the past five years, i.e. from 1972, show severe drought periods in the first three months of the year. This has resulted in even more meagre crops than usual in the months January to March, which is the lean season anyway. Generally there is a recovery in May to give bumper crops which continue into September and even November, but the failure of the South-West Monsoon last year is likely to result in poorer crops in May this year and the succeeding months. It is likely that coconuts at -/20 cents have become a thing of the past.

The other important factors affecting yield are soil and its nutrients. Coconut will grow on most soils provided they are well drained. Too often it has been said that coconut is the lazy man's plantation and all one has to do is to sit aside and wait for the nuts to fall. In Sri Lanka the attention paid to cultivation of coconut lands by the average person is minimal, unlike for example in Kerala (in India) where the plant is tended with care. Irrigation of coconut lands is unknown in Sri Lanka, but may have to be practised before long.

It has been proved that the application of fertilizer results in increased yield and that other cultivation practices are essential for good harvests. The Coconut Research Institute has conducted much research into fertilizer and its application and has advised the public on the quantum and type of fertilizer to be used on coconut estates for different types of soils. Since 1956, the Government has had a system of fertilizer subsidies to encourage its use, but during the last few years the practice of fertilizer application has received a setback partly due to increase in prices, since the 1974 energy crisis. The advent of Land Reform also brought some upsets, in that many estate owners were reluctant to spend money on fertilizer which they feared they would not be able to recover with the take-over of their land. In 1973 permits were issued for only 26,518 tons of fertilizer as against 44,836 tons in 1972, and 59,148 tons in 1971.[2]

Many good estates have deteriorated not only as a result of the lack of fertilizer but of other cultivation practices, such as cutting of drains, burying of husks, etc. Subsidies are now available for these, but their effects will not be felt for many years.

High Yielding Varieties

Replanting with hybrid varieties (Tall X Dwarf palms) which give a higher yield and come into bearing sooner had also been encouraged. But the number of seedlings available was inadequate. Also the hybrids are not as hardy as the tall palm and can only be grown in the wet zone and need more care and attention.

Better Utilisation of Existing Supplies

Another way of achieving the same result as an increased yield is to devise methods of reducing the consumption by eliminating the present waste in the domestic use of coconut. The Coconut Processing Board has tried to encourage and develop some more efficient method of coconut utilization and also of its by-products like shell and parings which are thrown away now.

1. By promoting the bottled coconut milk developed by the C. I. S. I. R. This product has been found to be acceptable to the public and has a shelf life of nearly six months. Even if 10% of the population were to use it there would be a considerable saving in nut consumption. There are a number of problems associated with this product, such as (*a*) the need for a returnable container. Containers are at a premium and one cannot be sure of their return. (*b*) An efficient method of extraction of milk so that all the oil and protein is extracted.

This is essential if the project is to be justified. The CISIR is working on improvements to this process.

2. Some senior coconut experts have long advocated the use of desiccated coconut for domestic use. The production of extra fine desiccated coconut which could be added straight into the curry would result in the whole coconut being consumed and not wasted. It may perhaps be more acceptable now than before since people are getting reconciled to grinding their coconut residue and using it in curries. The advantage of using desiccated coconut is that it could be manufactured in the season of plenty and kept for six months or more under controlled humidity conditions. This is true for bottled coconut milk too. In this way perhaps some solution could be found to the seasonal variation of the availability of nuts.
3. Recently a competition was conducted for an improved coconut grater and prizes were offered. The winner of the first prize devised a grating head which gave a very fine product giving 82% extraction of oil. This too requires some further refinements and improvement. More efficient extraction at home would go a long way to reducing the number of nuts used.

If the present coconut crisis has drawn our attention to the need for good cultivation practices and to the need to reduce the criminal waste of coconut fats and proteins that goes on in this country, and if we are able to reduce it even partially, then we could look on the crisis as one of those disguised blessings which we meet with once in a way.

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