

THE COCOA INDUSTRY IN INDIA

Y. S. LEWIS, S. SIVASANKAR, E. S. NAMBOODIRI and C. P. NATARAJAN.

Central Food Technological Research Institute, Mysore-13

India's annual production of cocoa (*Theobroma cacao*) is now about 400 tons of dry beans¹, which seems infinitesimal compared to the world production of about 1.5 million tons. However, compared to India's present consumption of the beans (based on import figures) of about 1000 tons, the production is significant. It is rapidly increasing, having started from only a few hundred kilograms a few years ago.

Due to the pioneering efforts of one commercial firm, considerable knowledge of the most suitable areas and methods of establishment of the cocoa plant in India has been gained over the last 10 years. Demonstration plots were set up and seedlings distributed to prospective growers, with detailed instructions on cultivation practices to be followed. The State Agricultural/Horticultural Departments of the Indian Council of Agricultural Research and the Directorate of Cocoa, Arecanut and Spices Development, Calicut have been involved in this extension work. Lakhs of seedlings are being distributed and enthusiastic growers are taking up cocoa cultivation during these years.

Under good management, cocoa plant starts yielding after 1½ years of planting. Otherwise, it may take 2½ to 3 years. Cocoa can be cultivated upto an elevation of 800 metres, but areas below 500 meters are better. It thrives best in humid climate. Evenly distributed rainfall or irrigation is very important. The shade should not be intense. The Forastero variety (purple beans and yellow smooth pods) has been found to be high yielding under Indian conditions. The Criollo (white beans and red rough pods) variety is not favoured for cultivation in India.

The impetus to increase cocoa cultivation is mainly provided by the profitability of growing it. The wet beans were being bought by the collection depots at Rs. 3 to 4 per Kg. in the beginning. Today

(1978) they are fetching Rs. 13 to 14 per Kg. The price is to some extent linked up with the international price. According to a calculation², an acre of cocoa plantation giving at least 300 kg. dry beans was expected to fetch a minimum income of Rs. 3000 in 1973. Today, this yield will fetch about Rs. 12,000

A figure of 5,000 acres has been mentioned in 1973² as under cocoa, but since many of the trees are at wide spacings due to interplanting with a variety of other crops like areca and coconut on small holdings, it is impossible to give a true figure for acreage. Some 13,200 ha are supposed to be under cocoa at present. Of this, Kerala has 10,500; Karnataka 2,500; Tamil Nadu 200 ha². As an intercrop in coconut or arecanut gardens an average of 20 pods a year per tree and 200 kg. of dry beans per acre can be obtained.

The most suitable areas for cocoa are along the Western Ghats, in the states of Kerala, Tamil Nadu and Karnataka, which receive rains from both the monsoons, and have fairly rich soils; Kozhikode District, Kanyakumari District and South Kanara District. Commercial firms are having collection depots in Chundale and Tamarassery (Kozhikode Dt.), Alappara (Trichur Dist) and Kottayam in Kerala, Kuttanad (Kanyakumari Dist), Tamil Nadu; Puttur and Sullia (South Kanara Dist) in Karnataka where wet beans are bought, fermented and dried. The Karnataka Forest Department has developed plantations of cocoa at the foot of the Ghats Shiradi and has its own fermenting and drying facilities. Some big planters in Kerala are also producing fermented and dried beans. The firms who use the dried cocoa beans would prefer to buy them from the growers. At present they are forced to do the fermentation and drying also themselves, because the growers do not know the technology. In fact some farmers, out of ignorance wash and dry the beans without fermenting them first. Such beans are rejected at the collection depots. Also, many small growers are not producing enough quantity of beans to be able to process them independently.

peak harvesting seasons are encountered in the major peak is during the monsoon (September) and the minor peak in December.

COLLECTION AND DRYING:

collection depots run by the users, wet beans are received through agents or growers, whom they come from far and near. The age of the beans at the time is, the time since they were taken out of the pods, is not always known. It is noticed sometimes, due to delay in transport, the fermentation had already started in the containers in which the beans were brought. This upsets the curing process, and often further fermentation is required, resulting in slimy beans, with the inside spongy and slaty.

Fermentation of the beans should be started in crates or boxes within hours after removal from the pods. Also, removal of defective beans, placentals, should be done in the beginning itself. The crates should be kept warm, to ensure proper fermentation. Improper wrapping and exposure to drafts during the night result in defective fermentation and indifferent quality in finished beans. It is noted that insufficient attention is paid to these matters in some of the centres and the beans are often put through a process of fermentation. This results in bad-smelling dark beans with a lot of slatiness still adhering, and the inside not attaining the proper colour and texture. Washing of the beans before drying is practised in some countries. It gives a better appearance, but it is not necessary.

Fermented beans should be dried early to prevent mould growth and further undesirable metabolic changes. Due to the limited capacity of the Samoan kiln now being used, during the peak season the beans are often stored, waiting to be dried. Moulds start growing on the surface and undesirable metabolic changes take place. It is desirable to have electrically operated driers to cope up with the increased production. They are cheaper to run and do the job more quickly and also give better product. Although sundrying gives the best results, the heaviest yield of beans is during the rainy season when artificial drying has to be resorted to.

Cocoa powder and confectionery manufacturers, rather than buy fermented dry beans from the growers. However, to help the farmers, the manufacturers themselves have taken on the task of fer-

menting the wet beans and drying them. As the indigenous production goes up, it would become necessary for the growers to do this job, either individually or in groups (co-operatives). Simple containers like wooden boxes or bamboo baskets can be used successfully for fermentation, even on as small a scale as 5 kilograms. During the sunny season the fermented beans can be straightaway dried on concrete floors in the sun. For the rainy season, electric driers can be used. In one of the trials conducted at Central Food Technological Research Institute, it is seen that a small low-cost drier with a capacity of 30-50 kg. of fermented beans takes only 22-24 hours for complete drying. This works out a much cheaper cost than conventional driers using firewood as fuel. Bigger driers can be fabricated suiting to the requirements of drying cocoa beans.

If the growers themselves ferment and dry the beans, they will have the added advantage that they can store the beans, grade them and sell or auction them when the price is high. The Central Food Technological Research Institute has arrangements to demonstrate the curing process to the planters in the important growing centres.

Dry cocoa beans should be graded to ensure good prices in the market. The main defects in the beans are: (1) mould infection, (2) germination, (3) slatiness, (4) weevil infection, (5) other defects like flat beans, placental detritus etc. Accordingly, cocoa is graded into 3 standards, grade I, II and subgrade as shown in the table.

Grade	Percent by count		
	Mouldy	Slaty	Insect damaged, germinated flat etc.
I	3	3	3
II	4	3	6
subgrade	above 4	above 8	above 6

In all the grades, the beans should be free from foreign matter and smoky beans.

The other important factor in sorting and grading is size of the bean. Small beans have high shell percentage and low fat content. So, the recognised standard weight per bean is 1 gram, with a tolerance limit of 10 per cent on either side.

UTILIZATION OF THE BEANS:

There are 5-6 cocoa processors in India at present, who manufacture products like cocoa powder, milk chocolate and chocolate coated candies. Their requirement of beans is met mostly from imported material at present. But in future years, as more and more beans become available internally, the import could be reduced or even stopped. It is noticed that quality of Indian beans is not uniform as farmers are new to cocoa cultivation. It can be improved further by proper fermentation and drying and grading according to quality.

Because of the high cost of beans and other ingredients which go into cocoa products, their selling prices in India at present are very high, and the markets are limited. The products are not within the reach of the common man. The commercial houses which make cocoa products now have installed costly and high capacity imported machinery. They are not run to their full capacity because of poor off-take of products and inadequate supply of beans.

With some drop in prices of cocoa and reduction in taxes it should be possible for the manufacturers of cocoa confectionery to sell their products at a price within the reach of the common man and make them more popular. Chocolate making does not require costly and large capacity imported equipment. It may be possible to set up small-scale chocolate confectionery units using indigenous equipment. Such steps on these lines will give impetus towards the development of cocoa industry in India.

REFERENCES

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3. Private communication, Directorate of Arecanut & Spices Development, Calicut.
4. Rohan, T.A., Processing of Raw cocoa for the market, FAO, Rome, 1963.

BLACK PEPPER IS EXEMPTED FROM EXPORT DUTY

According to the Government of India, Ministry of Finance, Department of Revenue, Notification No. 41-Customs dated the 16th February, 1979 Black Pepper when exported out of India is exempted from the whole of the duty of Customs leviable thereon. This notification shall be in force upto and inclusive of the 31st December, 1979.