

DESIGNING A COCOA DRYER USING AIR TYPE SOLAR
SYSTEM FOR RURAL FARMERS USAGE

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ABSTRACT

The design of solar cocoa dryer is presented in this paper. Further details of this design are described in chapter 5. This design is a result of the modifying of the forced convectional drying system which had been built at the Mechanical Engineering Faculty, University of Nigeria. The dryer is suggested for the rural farmers' usage, so that they could build their own dryer from the information given by this paper, in order to produce high quality of dry cocoa beans at a lower maintenance cost.

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I.0 INTRODUCTION TO COCOA INDUSTRY

Cocoa is the country's third major plantation crop after oil palm and rubber. Its importance to the country's economy has been increasing dramatically over the last decade. Since 1971 our share of the world crop production increased by over seven fold. Malaysia now ranks sixth in production ; it should emerge as at least the fourth largest producer in 1990, taking the country to new frontiers in world cocoa trade. (Malay.Agri.Dir.& Index 1986)

I.1 AREA

In the late 1970's and early 1980's there was a phenomenal rise in cocoa area, from 30,252 hacter in 1975 to about 242,000 hacter in 1984. Of the 242,000 hacter, 33% are found in Peninsular Malaysia, about 60% in Sabah and 6% in Serawak. In Peninsular Malaysia, about 41% of the planted area are estates, 47% are smallholdings and the rest under organized land schemes of public sector agencies. In Sabah, 82% of cocoa plantings are estates and the remainder under land schemes while in Serawak cocoa is essentially a smallholder crop. (Malay.Agri.Dir.& Index 1986)

The distribution of cocoa in the country, by states is presented in table I.1 . It is envisaged that the total area under cocoa will reach 400,000 hacter by the turn of this century. According to the Malaysia Business report on March 16th 1985, future expansion would