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ACD-5764
INVC MSA 13/1/98

**HIGH DENSITY PLANTING OF BUDDED CLONAL COCOA
- AN AGRONOMIC IMPLICATION**

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1996**

Dimikrofiskan pada..... 16.08.2000
No. Mikrofis..... 14819
Jumlah Mikrofis..... 2

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ACKNOWLEDGEMENT

I wish to express my fullest gratitude to Sime Darby Plantations for permission to pursue the degree of master in science and to Prof. Madya Dr Syed Shahar Barakbah of the Department of Botany, Faculty of Science, University of Malaya for his constant advice, encouragement, patience and constructive criticism throughout the course of this study. Thanks are also due to:

Dr Ho Chai Yee and Dr Lim Kim Huan, both of Ebor Research, Sime Darby Plantations for their encouragement, constant advice throughout the course of this study.

Mr Dennis Hon and En Ramli Kusnan of Statistics Department, Ebor Research for assistance in statistical analyses and graphics preparation.

Mrs Tina Garcia and Miss Tan Mooi Leng of Ebor Research and Puan Ratna of Merlimau Estate for typing/preparation of manuscript.

Mr V. Mohanan, Mr Kashimar Singh and En Azahar of Ebor Research, Merlimau Station, for their invaluable assistance in trial implementation, supervision and data collection throughout the course of experiments.

Management staff of Merlimau Estate for their constant support, cooperation and assistance in all aspects of field planting and husbandary of trial areas.

And finally, to my wife, Monica and daughter, Ivy for their unfailing encouragement and support throughout.

ABSTRACT

In its efforts to optimise cocoa yield per unit area with commercially available high yielding budded clonal materials, Sime Darby Plantations (SDP) experimented with various approaches of high density planting (HDP) in four spacing trials, including one on novel double hedgerow system, on Merlimau Estate, Malacca with predominantly Rengam series soil.

In the hedgerow HDP system, inspite of significant improvement on the clonal growth and yield performance brought about by drip irrigation, no further yield advantages were realised at densities beyond 2500 trees/ha. However, PBC 159, a moderately vigorous clone with dispersed canopy structure, appeared most suited to the higher hedgerow density around 3500 trees/ha. Generally, effects of density on yield declined over time.

For the conventional planting systems, all evidence pointed to 2200 trees/ha as the agronomic optimum density. Any yield increase in the HDP was due to significantly high pods production per unit area as it was established that pods per tree significantly declined with increasing density. Consistent with hedgerow experience, the smaller stature and less vigorous clones with less compact canopy eg. PBC 123 performed relatively better at higher density range of 2500 - 4000 trees/ha.

Clonal cocoa consistently out yielded the seedling F1 hybrid at all the density range evaluated.

The economics, on the whole, did not favour HDP system compared to the 1075 trees/ha conventional density due to the high establishment and upkeep costs given the less than favourable yield increases obtained at high densities. The viable HDP option appeared to be exploiting clones like PBC 123 and 159 for planting at around 2500 trees/ha conventional system.

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