

STUDIES ON VEGETATIVE PROPAGATION

IN

COFFEE

(Coffea arabica L. and

Coffea canephora Pirre.)

BY

H.W. NANAYAKKARA (Dip in Agric, B.Sc. in Agric)

THESIS

SUBMITTED IN PARTIAL FULFILMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF PHILOSOPHY

IN

AGRICULTURE

IN THE

POST GRADUATE INSTITUTE OF AGRICULTURE

OF THE

UNIVERSITY OF PERADENIYA, SRI LANKA.

APPROVED

EXAMINATION COMMITTEE

M. de Gasparo
R. Hillebrand
V. J. Jacobs

C 633.73

N15



390228

AGRICULTURE LIBRARY
UNIVERSITY OF PERADENIYA.

390228

ABSTRACT

Experiments were done to investigate the success, in rooting of cuttings and grafting in Coffee. This study was carried out at the Department of Minor Export Crops Research Station, Matale.

In the first experiment three rooting media were tried out with two types of cuttings (slips and whole cuttings) on a canephora variety and an arabica variety namely, I.M.R. and S₇ respectively.

In the second experiment also, the type of materials used and the methods followed were same as in the first experiment. The only difference was, the use of canephora variety S₂₇₄ in place of I.M.R.

One rooting medium (red earth: river sand in equal proportion) one type of cutting (slips) and one variety (S₂₇₄) were selected for the third experiment, on the basis of observations and inferences made on experiments one and two. Better rooting was observed in above rooting medium. More profuse callusing and rooting was visible in slips. Canephora varieties showed higher number of roots and better root elongation. The factors tested in the third experiment were, effect of hormone in rooting and effect of micro environment in rooting and sprouting.

Micro environment - 1 was the normal method of raising cuttings in pots; as practiced in first two experiments. In micro environment - 2, the top of the pots were covered with a polythene bag to maintain high humidity. Micro environment - 3, had a porous clay pot filled with water, at the centre of the cement pots. Experiment IV was designed to assess the success in interspecific and intraspecific grafting. Cleft - wedge grafting was done using canephora and arabica varieties.

Rooting medium - 1 (red earth and river sand in equal proportion) gave the best results in both sprouting and rooting. Canephora varieties were more readily rooted and sprouted than arabica varieties. In general callusing and rooting were faster in slips.

Micro environment - 2 showed best results in sprouting and rooting. High humidity maintained in this is the reason for achieving good results. Effect of hormone in rooting was not promising.

Both interspecific and intraspecific grafting were very successful. One interspecific combination showed 100% success. All the combinations had more than 95% success.

This subject needs more investigations under local conditions in order to develop a standard technique, since no other studies have been conducted in vegetative Propagation of Coffee.