ENTOMOLOGY BULLETIN : NO. 26
PESTS OF COCOA - MEALYBUGS

By J.E. Moxon, Senior Entomologist, Lowlands Agricultural Experiment Station, Keravat, East New Britain Province

INTRODUCTION

Mealybugs are small, white insects that suck the sap from many different kinds of plants including cocoa. They attack the growing points of stems and can sometimes cause serious damage to young cocoa trees.

DESCRIPTION

Adult mealybugs are oval in shape, about 3 mm long and 2 mm wide. The dome shaped body has no distinct head and is covered with a white powdery material. They have no wings and only small eyes. The short legs are hidden beneath the body and the pests can move only slowly.

The most common mealybug found on cocoa in Papua New Guinea is *Planococcus pacificus*.

BIOLOGY

Mealybugs lay their eggs in a group and cover them with a white cotton-like protective material. The eggs are laid both on cocoa and on shade trees. After a few days the nymphs hatch out from the eggs.

The nymphs, or crawlers, look like the adults. They grow and change their skins 3 times before they become sexually mature adults. They develop into adults in about 6 weeks.

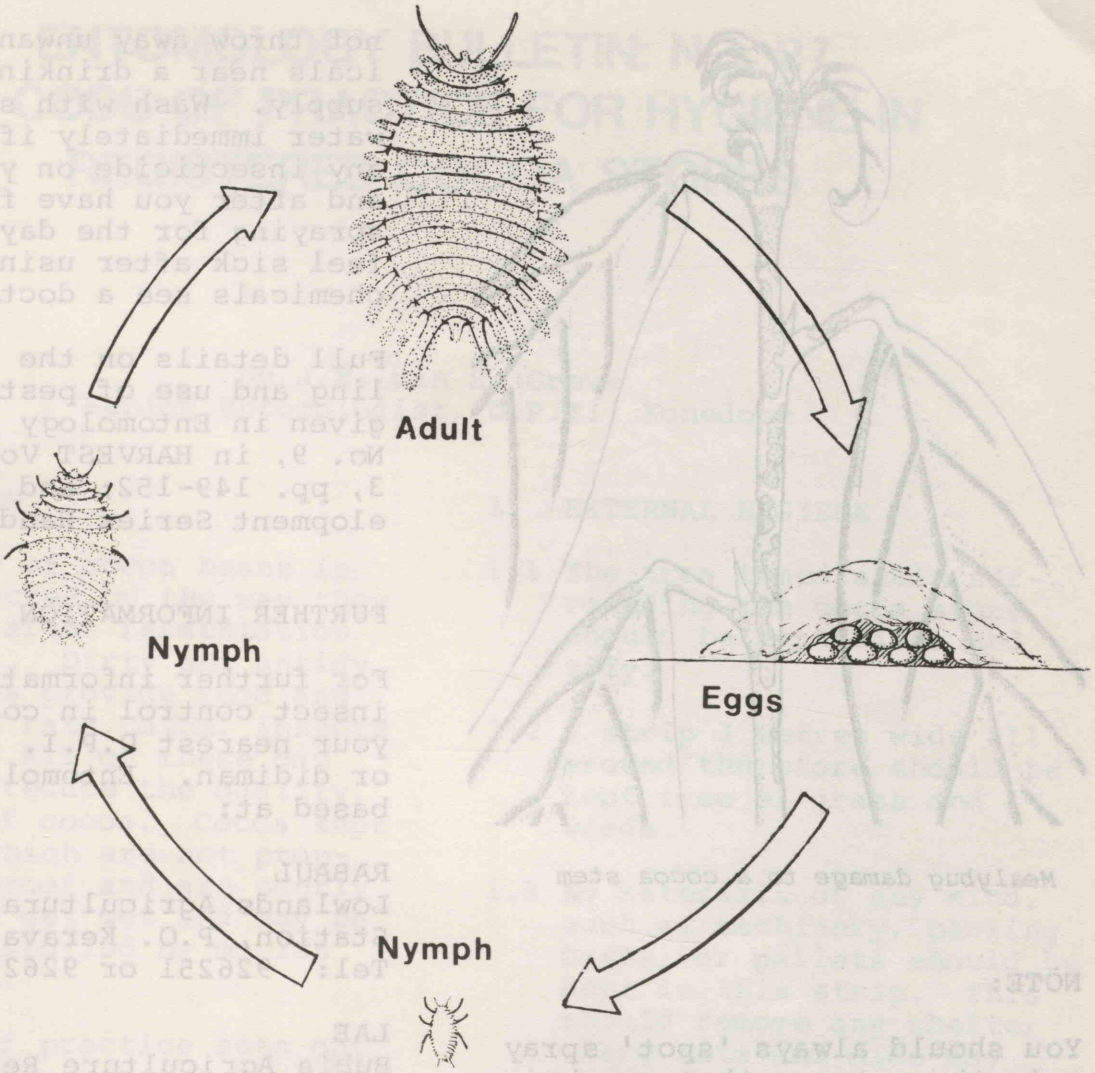
Both nymphs and adults feed on the sap from new cocoa stems, flowers and pods. They also like to feed on the stems and leaves of *Gliricidia* which is often used as a shade tree for cocoa.

Mealybugs breed rapidly and can become very numerous when ants look after them. The ants protect them from their natural enemies in exchange for honeydew, a sugary liquid produced by the mealybugs. Sometimes large amounts of this sticky honeydew are left on the leaves and stems of the plant. A black sooty mould then grows on this honeydew. This stops the leaves making food for the tree and slows down its growth.

ECONOMIC IMPORTANCE

Mealybugs can often be seen on cocoa in low numbers but they rarely cause economic damage and control is usually not necessary. Occasionally, however, large numbers can seriously damage the growing shoots of young plants. The stems and leaves loose their colour and the growing tips may be killed resulting in a poorly formed tree. This kind of damage should be controlled.

On very rare occasions massive numbers of mealybugs build up on *Gliricidia* and produce black sooty mould. Growth is slowed



Life cycle of the mealybug

down and branches may be killed. Control is also necessary here.

CONTROL

You should only control mealybugs when large numbers are found damaging the growing shoots of very young (unjorquetted) cocoa or when the growth of young *Gliricidia* is being severely held back. Only spray those trees that are being badly damaged and not all trees in the block. This is called 'spot' spraying.

The recommended chemical is a 0.05% solution of malathion. You should spray the trees using a knapsack machine until 'run off'. To obtain the solution, mix together:

10 ml 'Malathion 50'
100 ml white oil
10 litres water

CRAZY ANT ASSOCIATION

Mealybugs living on the cocoa and *Gliricidia* shade trees are a major food of crazy ants. Crazy ants protect cocoa from a number of insects including *Pantorhytes*, the most serious pest of cocoa in Papua New Guinea. Mealybugs should therefore only be killed when necessary. If the mealybugs are killed on the young cocoa the crazy ants can still survive on mealybugs living on the *Gliricidia* shade trees.

Mealybug damage to a cocoa stem

NOTE:

You should always 'spot' spray only those trees that are being damaged by pests. Do not do regular prophylactic (protective) spraying over large areas as this will kill the natural enemies of many kinds of insect pests and so cause more problems.

All spraying should be done in fine weather and several hours before any rain, preferably in the early morning or late afternoon so that the young leaves are not burnt by the sun. Only use recommended chemicals - others may be too poisonous or ineffective. Never use the pesticide containers for other purposes. Read the labels carefully and only mix up enough chemical for immediate use, as diluted chemical soon loses its strength. Wear rubber gloves when handling the concentrate. Store in a safe place out of the reach of children and animals and away from food. Do not throw away unwanted chemicals near a drinking water supply. Wash with soap and water immediately if you spill any insecticide on your skin, and after you have finished spraying for the day. If you feel sick after using the chemicals see a doctor.

Full details on the safe handling and use of pesticides are given in Entomology Bulletin No. 9, in HARVEST Volume 6, No. 3, pp. 149-152; and Rural Development Series Handbook No. 18.

FURTHER INFORMATION

For further information about insect control in cocoa, contact your nearest D.P.I. entomologist or didiman. Entomologists are based at:

RABAUL
Lowlands Agricultural Experiment Station, P.O. Keravat, E.N.B.P.
Tel: 926251 or 926252

LAE
Bubia Agriculture Research Centre, P.O. Box 73, LAE
Tel: 424933

KIMBE
Dami Oil Palm Research Station
P.O. Box 165, KIMBE, W.N.B.P.
Tel: 935204

PORT MORESBY
D.P.I., P.O. Box 417, KONEDOBU
Tel: 214699 Ext. 255

MOUNT HAGEN
Kuk Agricultural Research Station, P.O. Box 339
MOUNT HAGEN
Tel: 551377

Copies of this Entomology Bulletin can be obtained from:
The Publications Officer
Publications Section, D.P.I.,
P.O. Box 417, KONEDOBU.

(Illustrations: Jane Leng)