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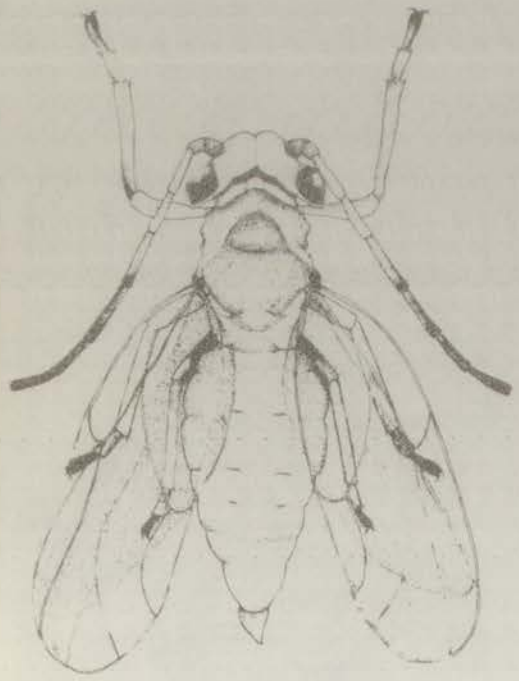
PSYLLID PEST OF LEUCAENA

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

INTRODUCTION

In March 1986, the Department of Primary Industry found a new insect pest which causes serious damage to the tree *Leucaena leucocephala* (local name: lantoro). The insect has been identified as a psyllid. Its scientific name is *Heteropsylla cubana*. The psyllid originally came from the Southern United States and South America. It was probably carried to Papua New Guinea via other Pacific countries by moving air masses. The insect is present on leucaena throughout all lowland areas of Papua New Guinea and also in some highland provinces.



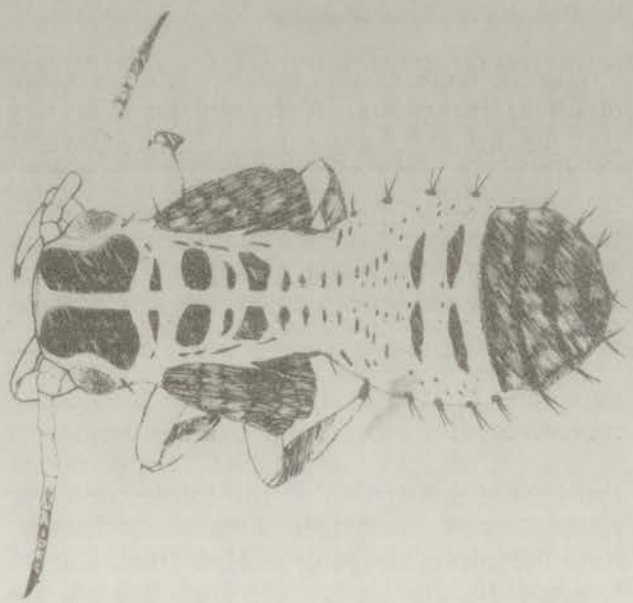
Adult leucaena psyllid, about 35 times natural size

DESCRIPTION

The adults are very small, about 2 mm long, and are green or orange. They have wings and long back legs which they use for jumping - hence their other name, jumping plant lice. The nymphs (young psyllids) are the same colour as the adults. They also have legs but no wings. The best place to see both nymphs and adults is on the young leaves and shoots of leucaena trees.

BIOLOGY

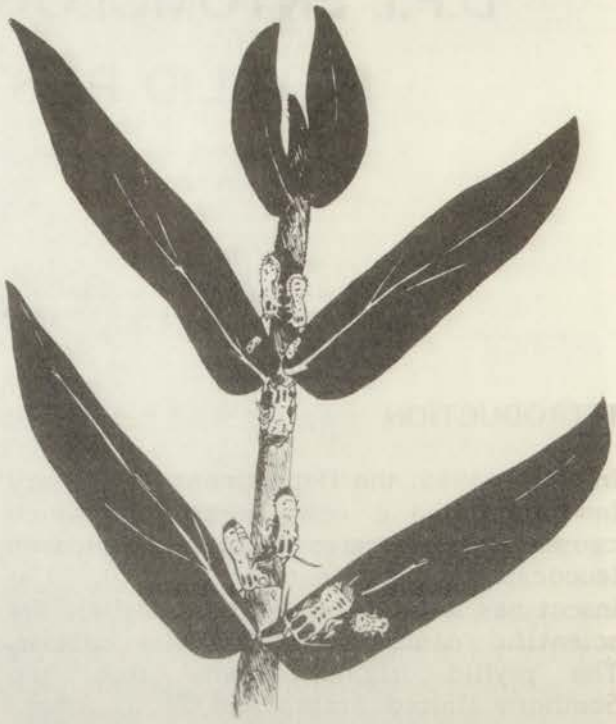
The psyllids lay eggs singly on young unopened leucaena leaves. The eggs are attached to the leaf surface by a stalk, through which juices are obtained. After 2 to 3 days nymphs hatch from the eggs.



Late nymph of the leucaena psyllid

There are 5 nymphal instars (stages) and altogether they last 8 to 9 days. After this the nymphs change to adults. They mate, and a few days later the female lays eggs. The total life cycle is about 14 days. A female lays about 400 eggs in her life time.

Egg and early nymph of the leucaena psyllid



Nymphs of the leucaena psyllid feeding on a young leucaena shoot

ECONOMIC IMPORTANCE

Both nymph and adult psyllids feed on leucaena. They suck the juices mainly from young leucaena leaves and shoots. They produce a sugary liquid called honeydew. Black sooty mould grows on the honeydew on the leaves and shoots.

Psyllid damage causes the tree to lose some or all of its leaves. Although the tree may turn brown and have a burnt appearance it is still alive and can grow again. However, if the psyllids continue to eat new growth the tree may stay brown and eventually die. Damage is worst during dry weather. The pest is not known to attack any cash or food crops.

Leucaena is used as a shade tree for cocoa, robusta coffee, cardamom and other cash crops. It is most important to the cocoa and coffee industries. If the shade trees for young cocoa or coffee lose their leaves, then the young cocoa or coffee trees will be exposed to the hot sun. This causes the crops to grow poorly or die. If the shade

Young leucaena leaves damaged by the leucaena psyllid

trees over mature cocoa or coffee lose their leaves, then the cocoa or coffee will not die. However, you could lose over 30% of the crop if fertilizer is not applied.

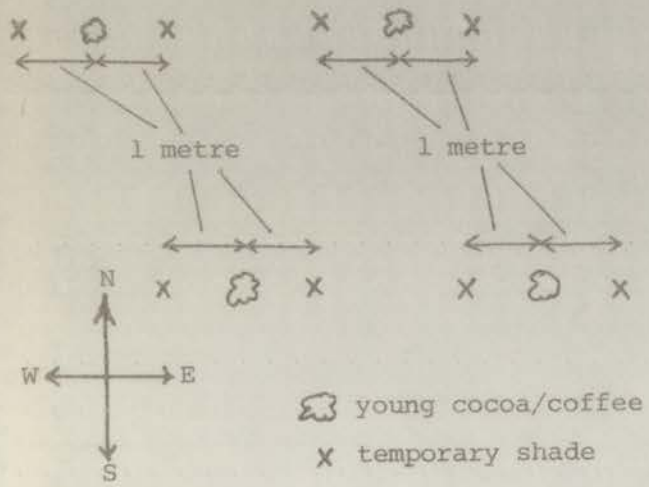
Leucaena is also used for firewood, to prevent soil erosion and as a fodder for livestock.

CONTROL

The best way to control the leucaena psyllid pest is to use its natural enemies (other insects that eat it). We do not know of any good natural enemies in Papua New Guinea, and we will have to try and find them overseas. This may take quite a long time. In the meantime the following methods will help to protect your crops.

1. On young cocoa or coffee up to 9 months old

You can shade young cocoa plants from the hot sun by sticking a coconut frond or bombom into the ground next to each plant. You should then plant a quick growing temporary shade such as pigeon pea or crotalaria. Plant the shade trees on each side of the cocoa or coffee and 1 metre from it in an east-west direction. The trees must grow for about 2 months before they provide good shade. These temporary shade trees will last for about 2 years. If you can not obtain pigeon pea or crotalaria use gliricidia sticks instead.



Plant temporary shade trees about 1 metre from your cocoa or coffee, in an east - west direction, as shown above.

2. On cocoa or coffee trees from 9 months to 18 months old

Larger cocoa or coffee trees need a taller shade tree than pigeon pea or crotalaria. Therefore you should plant gliricidia shade tree sticks, using 1 gliricidia for every cocoa or coffee tree. Use gliricidia sticks that are at least 2 metres long and again plant in an east-west direction. The gliricidia will provide shade after about 4 months.

3. On cocoa or coffee trees older than 18 months

It is very difficult to grow new shade trees in mature cocoa or coffee blocks because there is not much light under the crop trees. Fertilizing the cocoa and coffee trees will prevent crop loss. You should put 100 g of urea or 200 g of NPK or sulphate of ammonia on the soil around each cocoa or coffee tree 4 times a year.

NOTES

1. It is not worthwhile fertilizing old cocoa or coffee trees that have been badly damaged by insects or diseases and are not yielding much crop.

2. Sometimes, in blocks with a mixture of shade trees, such as leucaena, gliricidia, coconuts, betelnut, etc., the cocoa may be over-shaded. In this case, if the leucaena trees lose their leaves, your crop yield may actually increase.

3. Do not kill all the grass and weeds in the block with herbicides. Short grass will help prevent loss of moisture from the soil. You should ring weed the cocoa or coffee trees and slash weeds everywhere else.

4. We can kill the psyllid pests by spraying with insecticides. However, this is very expensive. A lot of chemical is needed for each large tree and also we would have to spray the trees many times each year. The Department of Primary Industry is at present trying to find a cheap chemical method to control the psyllid.

FURTHER INFORMATION

When the Department of Primary Industry finds a good natural enemy of the leucaena psyllid pest and releases it in Papua New Guinea, a revised Entomology Bulletin will be issued, giving details of the new recommendations.

For further information about insect control, contact your nearest DPI entomologist. Entomologists are based at:

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

LAE
Bubia Agriculture Research Centre,
P.O. Box 1639
LAE
Tel: 424933

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

KIMBE
Dami Oil Palm Research Station,
P.O. Box 165,
KIMBE, West New Britain Province
Tel: 935204

RABAUL
Lowlands Agricultural Experiment Station,
P.O. Box Keravat,
East New Britain Province
Tel: 926251 or 926252

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

(Illustrations: Jackson Kaumana)