ENTOMOLOGY BULLETIN NO. 10

THE CARDAMOM MIRID AND ITS CONTROL

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INTRODUCTION

Although cardamom is not widely grown in Papua New Guinea, There is a lot of interest in this spice crop. Good yields are produced only at elevations of 600-1000 metres.

In most areas of the mainland, a small sucking bug called the cardamom mirid (*Ragwelellus horvathi*) can badly damage cardamom leaves. This slows plant growth and reduces yields, especially on young plants.

DESCRIPTION

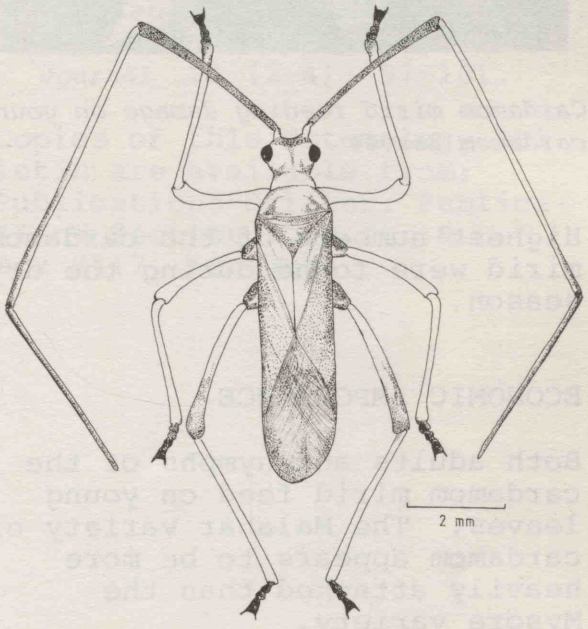
Adult cardamom mirids have orange coloured bodies about 8 mm long, with long legs and antennae (feelers). They move quickly and will fly to the other side of a leaf if disturbed.

The nymphal (immature) stages are similar to the adults, but are much smaller and cannot fly.

BIOLOGY

At Popondetta, the life cycle is about 7 weeks. Females lay 60-70 eggs into the mid ribs of recently unrolled leaves. Only 2 or 3 eggs are laid into one leaf.

After about three weeks, very small bugs (only 1 mm long)



The cardamom mirid, Ragwelellus horvathi, *adult stage*

emerge and immediately move onto the most recently expanded leaf to feed. Over the next three weeks, the mirids pass through five nymphal stages before they become adult. Then, another week later, adults may start laying eggs.

This cycle may take longer at higher elevations where cardamoms are usually grown, and where it is cooler. Adult cardamom mirids at Popondetta lived for at least eight weeks.

During studies at Afore in the Northern Province, these insects were also found to feed on several common forest plants and adults can fly from these plants to cardamoms.

Cardamom mirid feeding damage on young cardamom leaves

Highest numbers of the cardamom mirid were found during the dry season.

ECONOMIC IMPORTANCE

Both adults and nymphs of the cardamom mirid feed on young leaves. The Malabar variety of cardamom appears to be more heavily attacked than the Mysore variety.

Feeding may occur on the shoot before it unrolls, but leaves which have been opened more than three weeks are not attacked. Newly planted splits can be badly attacked by the cardamom mirid.

Mirids usually feed in a straight line 2-5 cm long between the veins of the leaves. They kill the plant cells by sucking sap (plant juice) from them. A week or two later, the feeding damage appears as clear 'windows' on the leaf because the upper and lower surfaces of the plant cells remain with an empty space between them. When cardamom mirids feed on the unrolled shoots of cardamom plants, the leaves may emerge deformed or small.

As the leaves grow older they become tattered by wind because they split apart along the feeding lines. The feeding damage caused by the cardamom mirids reduces the area of leaves which provides food for the plant. Therefore, damaged young cardamoms may not grow and yield well.

Large, well grown clumps of cardamom suffer little damage from these insects because they have many shoots which provide enough leaves to feed the plant.

CONTROL

Since serious damage occurs only on young plants, only those cardamoms planted in the field for less than about 18 months need to be protected. Splits should be planted during the early wet season so that they are growing well by the following dry season, when most damage by cardamom mirids is likely to occur.

There are separate recommendations for the control of this insect pest for large scale growers and for smallholders, who usually have a lot of labour available.

Smallholder blocks

Growers should pull out all forest plants that provide food for these pests and are growing near their cardamom blocks.

About every six weeks throughout the year and especially during the dry season, they should inspect the three or four youngest leaves and the rolled up shoot on every cardamom clump. All mirids found can be easily be picked off and killed by hand. Children can do this while their parents maintain the block or harvest the pods.

It is important to inspect the plants every six weeks. This makes sure that the bugs which were in the egg stage during the last inspection are killed before they themselves lay eggs.

Large scale plantations

If necessary, dusting with insecticide (gamma HCH = lindane) at a rate of 150 to 160 g a.i. (active ingredient) per hectare, should be carried out over the whole area of young plants at the beginning of the dry season. This should be followed by a second dusting 6-7 weeks later. Further applications at 6-7 week intervals during the dry season may be necessary.

FURTHER READING

Breay, G. St.J. (1971). Cardamom. *Harvest* 1 (1): 15-19.

Grant, A.W.B. (1976). *Cardamom.* Rural Development Series Handbook No. 3. D.P.I., Konedobu. 22 pp.

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