RICE INSECTS IN THE NORTHERN PROVINCE

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INTRODUCTION

Rice has been grown in the Northern Province for many years but usually has been severely damaged by insects. During the 1974 dry season, the Department of Primary Industry planted 13 trial plots of rice (variety N.G. 6637) and made observations in several areas of the Province. The object was to find out if rice would grow well in these areas, and if it could be grown by villagers. The plots were visited regularly to record plant growth, the presence of pests and diseases, and any other features of the growing crop.

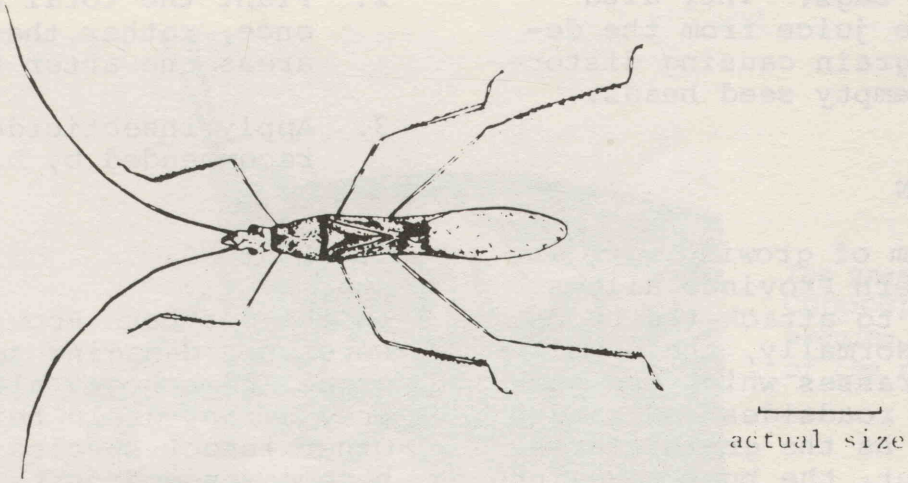
Staff from the Entomology Section, Popondetta visited the 13 plots to record the information.

RESULTS

Over 90 species of insects were collected from growing rice. Several were serious pests, while many others which were mainly leaf feeders, could become serious pests if rice is grown extensively in the Northern Province.

Five definite pest species and 18 minor or potential pests were recorded during the growing period. A further 19 species of insects were beneficial and did not damage rice. They fed (or lived) on other insects, including the serious pests. These are called predators and parasites.

Insect damage before the 'heading stage' was only slight



Leptocorisa acuta *(adult)*

during the season. However, from the flowering stage onward severe damage and often almost total destruction of the crop was caused by bugs feeding on the developing pods.

Three species of rice bug (*Leptocorisa*) were common in the crop after flowering. The bugs moved from nearby grasses onto the rice and attacked the grains at the milky stage. Feeding caused a small brown spot to form on the grain where the milky juice had been sucked out.

All but one of the rice plots had suffered rice bug damage which resulted in empty or incompletely filled seed heads (panicles).

Eggs of rice bugs were parasitised or eaten by several other insects, but enough of the eggs remained for large numbers of the bugs to survive and damage the rice crops. The bugs can be controlled by spraying with insecticide at ten-day intervals.

Another species of bug (*Pachybrachius nervosus*) was also found in large numbers on developing seed heads. These bugs were black in colour and smaller than rice bugs. They also sucked the juice from the developing grain causing distortion and empty seed heads.

DISCUSSION

The system of growing rice in the Northern Province allows rice bugs to attack the crops easily. Normally, the bugs live on grasses which are common along roadsides and garden borders. As the grain starts to fill out, the bugs move into the crop.

Villagers usually plant small areas one after the other, so that they only have to harvest small areas at a time. These staggered plantings produce a succession of plots with grain at the most easily damaged stage. The bugs move from one plot to another as the crops develop, causing great damage.

Since the grasses are widely distributed and the bugs fly in large numbers to the rice as soon as the grain starts to fill out, rice crops are very likely to suffer damage by rice bugs.

These results suggest that in the Northern Province, rice crops would be attacked and damaged by rice bugs. Suggested methods of reducing damage are:

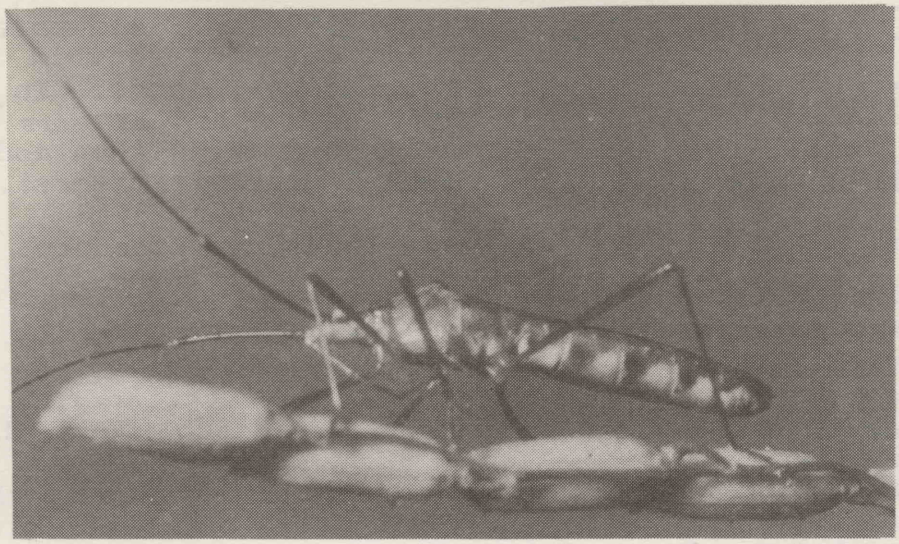
1. Use small plots in newly cleared gardens, with a boundary of forest or a lot of kunai around them. They should be a long way from previously cleared areas which are covered by grasses. These gardens would be free of rice bugs only in the first year and should not be used for rice in the next year.

2. Plant the total area at once, rather than in small areas one after the other.

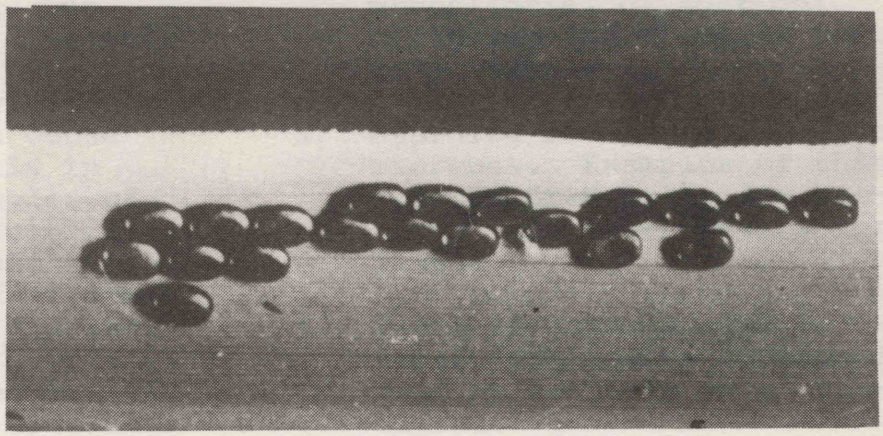
3. Apply insecticides as recommended by D.P.I.

CONCLUSIONS

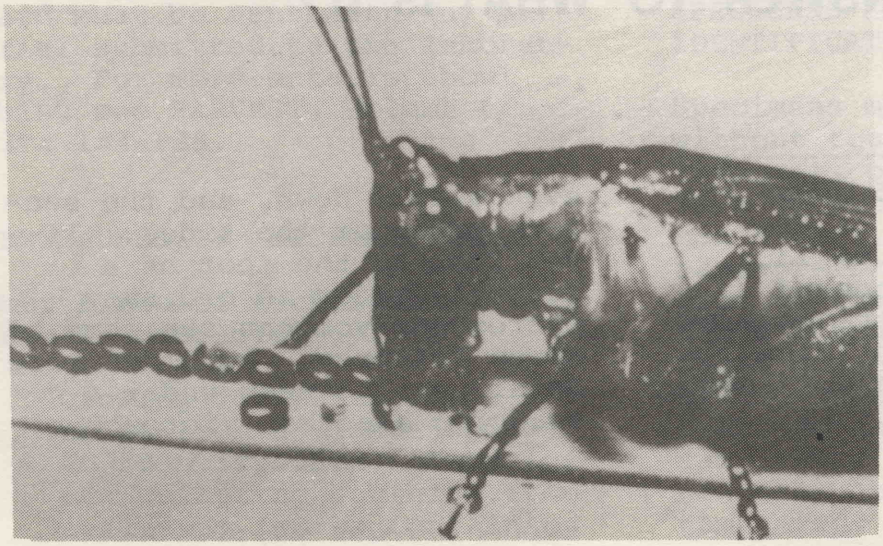
In the Northern Province, bugs were very damaging to the rice crops and a heavy attack could prevent any grain being formed. Other insect species could also become serious pests.



Side view of the adult stage of the rice bug Leptocorisa oratorius



Eggs of the rice bug



The grasshopper, Conocephalus, *preying on the eggs of the rice bug*

FURTHER READING

Sands, D.P.A. (1977). The biology and ecology of *Leptocorisa* (Hemiptera : Alydidae). In *Papua New Guinea Research Bulletin No. 18.* Department of Primary Industry, Konedobu.

Hale, P.R. (1976). Field notes on insect pests of rice in the New Guinea Islands. In *1975 Papua New Guinea Food Crops Conference, Lae.* (K. Wilson and R. Michael Bourke, Editors). p. 257. Department of Primary Industry, Konedobu.

Photographs: D.P.A. Sands

ANSWER TO 'WHAT IS IT?'

The picture on page 5 shows the underside of the tip of the foot of a tiny fly 2 mm long, magnified several thousand times. You can see the pads of hooked hairs by which flies can hang on to smooth surfaces, even upside down, and the sensory hairs at the sides. If you look at the foot of a housefly under an ordinary microscope you can see some of these features. But much more detail can be seen under a scanning electron microscope.