

## ARTIFICIAL CONTROL OF *HELOPELTIS*\*

The *Helopeltis* bug causes damage to a wide range of host plants, the most important in East Africa being cotton and tea. Where cacao and cinchona are grown, they also are attacked. In the nursery, seedlings of avocado, mango, guava, and kapok, among others, are severely affected. As described by Harris (this Journal, Vol. 2, p. 387), the injury consists of two main types:—

- (a) *On the Foliage.*—Numerous angular spots appear, first of all black, later becoming brown and more or less transparent as they dry out. Leaves severely attacked when young crumple, and the plant develops a bunching growth. Superficially these spots resemble those caused by bacteria — for example, angular leaf-spot in cotton — but with the important difference that fresh *Helopeltis* spots are never water-soaked.
- (b) *On the Stems and Branches.*—First discoloured patches appear, which after a short time dry out and form rough, corky lesions. These, if large, split and form cankerlike growths as the stem becomes woody. They are to be distinguished from bacterial lesions by the fact that, until they begin to dry out, they only affect the outer layers of the stem.

It does not need a large population for conspicuous damage. It has recently been found at Amani that severe injury was caused to cinchona when the average number of *Helopeltis* present did not exceed one adult and at most two nymphs per tree. This became more understandable when it was found in the laboratory that the daily number of lesions produced by a single third-instar nymph varied between 30 and 140, with an average of 85.

In experimental work with *Helopeltis*, which is being published elsewhere, Kirkpatrick noticed that the bugs kept in the laboratory rapidly found and fed on sugar solution. This suggested the possibility that poison-bait might be effective. For the present purpose a strength of 1 oz. of sodium arsenite and 5 lb. of sugar to 4 gallons of water was the most satisfactory. When cinchona foliage

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sprayed with this solution was made accessible to *Helopeltis* in the laboratory, over 80 per cent of the bugs were dead in twenty-four hours and all the rest in forty-eight. With only  $\frac{1}{2}$ -oz. of sodium arsenite per 4 gallons, the immediate effect was equally good, but after a single night's dewfall the poison lost its power. A solution containing 2 oz. of sodium arsenite scorched the leaves.

Owing to a seasonal shortage of *Helopeltis* and Mr. Kirkpatrick's departure to join the forces, the experiments could not be extended to the field. His preliminary results are, however, of interest for those concerned in the control of this troublesome insect. The indications are that the best results consistent with economy of bait would be obtained by the use of a sprayer that delivered the fluid on to the foliage in the form of small droplets rather than as a fine mist.

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