

BIOLOGICAL NOTES ON DASYNUS MANIHOTIS BLÖTE

by

Dr S. LEEFMANS

With Plate XII

In June 1932 we received at the Institute for Plant-diseases at Buitenzorg (Java) a number of Coreid bugs, sent by the Adjunct Agricultural Adviser stationed at Wonogiri (Res. Djocjacarta, Central Java), which bugs were reported of causing rather serious damage to Cassava plants (*Manihot utilissima* Pohl); the sending included some damaged plants.

The Coreids were sent for identification to Dr. H. C. Blöte, curator of the Leiden Museum, as it was known to me that he was studying this special group of Heteroptera. Recently Dr. Blöte (1935) described the species sent as *Dasynus manihotis*. It is closely related to another noxious species of *Dasynus*, some years ago described by China as *Dasynus piperis*, which is well known by the studies of Dr. J. van der Vecht (1933).

C h a r a c t e r o f t h e d a m a g e . *Dasynus manihotis* sucks the top parts of the stems of the Cassava plants. Its puncture causes the tissues to shrink and the leaves to wither. Soon after the puncture the shrunken tissues take a brownish colour, later the leaves wither entirely and drop, and the stems that are much punctured die off. New leaves can develop from the lower part of the stem, but in the meantime growth is much retarded. The illustration (fig. 1) gives a good impression of the damage in its earlier stage. The irregular sunken patches in the lower part of the stem have a light tobacco to chocolate brown colour. The smaller spots between the second and the third small leaves from below are pale brown. Experiments in the laboratory on healthy plants gave the same symptoms.

B i o n o m i c a l n o t e s . The egg is 2 mm long. It is figured on approximately natural size (fig. 2) and enlarged (fig. 3). The colour is pale yellow in newly laid ones; later on the colour turns brown. In captivity

the eggs were laid under the leaves or on the leaf stalks. The larvae emerged from ten closely observed eggs after 7 days.

Larvae newly emerged from the eggs measure $1\frac{3}{4}$ mm. They are handsomely coloured and curiously formed (fig. 4). The darkly shaded parts of the illustration are dark chocolate brown, the rings round the tibiae are pale brown. The abdomen is greenish yellow, the four dark spots of the abdomen are dark brown, the lightly shaded mushroomlike spot is pale red. The lightly or unshaded parts of the legs are pale yellow.

The first moult followed three days after the emergence from the egg. Further moults were not registered, due to lack of time. After 15 days larvae bred in jars already measured 5 mm, and after a month a length of 8 mm was registered. A larva of this last named size is represented in fig. 5. Its head, the legs, the second and third articles of the antennae are sooty black, the pronotum and the abdomen are dark tile red with sooty black marks, the eyes are pale brown. The first articles of the antennae are straw yellow sprinkled with black, the top lids are yellowish white.

The larvae moulted for the last time and became full grown in 55 to 57 days after emergence from the egg. The total length of the life cycle amounts therefore to two months or exactly 62 to 64 days.

It must be mentioned here that only three larvae could be bred from eggs to imagines and that the bugs could not be induced to propagate under laboratory conditions at Buitenzorg. Apparently this was caused by lack of the appropriate kind of food. It was namely impossible to breed the larvae on Cassava; then they died after the first moult. Only those larvae could be bred to imagines which were kept in jars with four different kinds of food plants, viz., Cassava, Bamboo, *Ipomoea batatas* and *Centrosoma* spec. It was observed that the larvae most often were sucking the pods of the last named, a well known greenmanure plant. The preliminary conclusions drawn from our observations (by my native assistant mantri Inen and myself) are therefore that Cassava is not the usual food plant of this species and that the bugs probably have done damage to the Cassava plants only on account of lack of their normal food. This assumption has been strengthened by the aforementioned fact that the bugs would not propagate with Cassava as food in captivity and furthermore by the fact that after 1932 until my departure from Java in April 1933 no further report about this damage has been received.

Similar cases of temporary adaptation by insects to foodplants different from those on which they usually occur are by no means very rare. I can mention two of these cases from my own experience in the Netherlands

East Indies. One of these (Leefmans, 1923) is a serious attack by a small Buprestid in Sumatra (Deli), viz., *Agrilus acutus* Thunb. on Java jute (*Hibiscus cannabinus*). The plants were killed right away by the spirally mined galleries in their stems. The real foodplants of this beetle very likely are wild Malvaceae, probably *Urena lobata* L. The second case (Leefmans, 1930/31) is that of a small Curculionid, *Eugnamptus hirsutus* Voss., which attacked tea in Sumatra. In both of these cases no further reports about damage have been received until now.

We hope and trust that *Dasynus manihotis* may be a similar case, because the character of the damage done by this bug to Cassava was rather serious.

As the damage — though of a serious character — was mentioned as being of not much extension the economical critical circumstances in 1932 forbade a special visit to the rather remote spot. So a local investigation as to the normal foodplant could not be undertaken.

As it is possible that this Coreid may prove to be an additional pest to Leguminosae I thought it opportune to add to the description of this new species the bionomical details obtained by us.

To the description by Dr. Blöte can be added that two colour types were found among the material obtained and bred, which occurred in the males as well as in the females (figs. 6 and 7). The principal differences between these two colour types are found in the shade of colour and the granulation, which are also sufficiently visible in the black and white illustrations. The sexes can be readily distinguished by the form of the last segment of the abdomen.

LITERATURE CITED

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EXPLANATION OF PLATE XII

- Fig. 1. Cassava stem top damaged by *Dasynus manihotis* Blöte. $\frac{2}{3}$ natural size.
Fig. 2. Newly laid eggs, about natural size.
Fig. 3. Newly laid egg, enlarged.
Fig. 4. First larval stage (for size see text).
Fig. 5. Larva, one month old (for size see text).
Figs. 6 and 7. Two types of imagines.
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