

CYRTOMENUS BERGI FROESCHNER, A NEW PEST OF CASSAVA :  
BIOLOGY, ECOLOGY AND CONTROL

(*Cyrtomenus Bergi Froeschner* ravageur de manioc :  
Biologie, Ecologie et Lutte)

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SUMMARY

Nymphs and adults of this subterranean sucking insect, *Cyrtomenus bergi* Froeschner, feed on cassava roots by means of a thin, strong stylet. Insect feeding combined with soil pathogens induce the appearance of brown to black spots on the white fleshy root, rendering it commercially unacceptable. In recent years severe attacks of this pest have caused severe crop losses in several cassava growing areas of Colombia. Life cycle studies indicate an egg stage of 13.6 days, five nymphal stages totalling 111.2 days, and an adult stage of 293.4 days. Field studies show that *C. bergi* populations are present in the soil throughout the crop cycle and root damage is initiated during the first or second month. Studies show that there is a definite preference for feeding on low HCN varieties. Studies of control of *C. bergi* show that foliar applications of a systemic pesticide will reduce damage but intercropping with repellent varieties is more promising.

RESUME

Les larves et les adultes de *C. bergi* se nourrissent sur les tubercules de manioc au moyen d'un fin et solide stylet. L'alimentation de l'insecte combinée avec les pathogènes du sol provoque l'apparition de taches brunes à noires sur les parties charnues blanches des tubercules les rendant inacceptables sur le plan commercial. Dans les années récentes des attaques importantes de ce ravageur ont causé de sévères pertes dans plusieurs régions de culture du manioc en Colombie. Les études sur le cycle de cet insecte ont montré en moyenne que l'incubation des oeufs était de 13,6 jours, que la durée des 5 stades larvaires était de 11,2 jours et que le stade adulte était de 293,4 jours. Les études en champs ont montré que les populations de *C. Bergi* étaient présentes dans le sol pendant toute la période de cul-

ture et que les dégâts intervenaient pendant le premier ou le second mois de végétation. Les études ont montré qu'il y avait également une très nette préférence pour les variétés à basse teneur en HCN. Les études concernant la lutte contre *C. bergi* ont montré que l'application foliaire d'insecticide systémique réduisait les dégâts mais l'utilisation de rotation avec des variétés non attractives paraissait plus prometteuse.

## INTRODUCTION

Cassava (*Manihot esculenta* Crantz) is attacked by a wide range of insects and mites (BELLLOTI and SCHOONHOVEN, 1978). The great majority of these pests are leaf and stem feeders and their subsequent damage, therefore is indirect in that the commercial part of the plant, the swollen root is not directly fed upon by these pests. Few pests directly feed upon the roots ; termites, grubs and certain species of borers are reported as occasional root feeders.

In recent years, beginning about 1980, damage to cassava roots caused by a subterranean sucking insect, *Cyrtomnus bergi* Froeschner, has been observed in several important cassava growing regions of Colombia. Damaged roots are rendered commercially unacceptable for the fresh root market and often are also rejected by the processing market. Since root damage cannot be detected until roots are harvested and peeled, a 20 to 30 per cent infestation (percentage of roots damaged) will often result in complete rejection by middlemen who purchase roots by the truck-load or while still in the field.

The potential damage of this insect is, therefore, extremely serious for the fresh market. Consequently the CIAT Cassava Entomology Program initiated studies into the biology, ecology and control of this pest.

## PEST DESCRIPTION AND DAMAGE

Nymphs and adults of *C. bergi* feed on the swollen roots of cassava by injecting their strong thin stylets through the root peel into the parenchyma. Insect feeding combined with soil pathogens induce the appearance of brown to black spots on the White fleshy root, rendering it commercially unacceptable. This feeding habit results in the transmission of several fungal pathogens and their development causes a "smallpox" effect on the edible portion of the root. These pathogens include species from the genera *Aspergillus*, *Diplodia*, *Fusarium*, *Genicularia*, *Phytophthora* and *Pythium*. These micro-organisms degrade the infected root tissues causing initial localized rots which can invade the entire root along the vascular system. Lesions are pale to dark brown spots which show tissue degradations (CIAT, 1981). Laboratory observations show that these spots begin to appear at 12 to 24 hours after feeding is initiated.