

ABSTRACT

Studies were conducted in Trinidad on the epidemiology of the mosaic disease of Los Banos Bush Sitao No.1, a vegetable-type cowpea or *bodi* (*Vigna unguiculata* (L.) Walp.). The disease is of economic importance and is induced by Cowpea Severe Mosaic Virus (CPSMV), the identity of which was confirmed by serological tests.

Investigations on possible vectors of CPSMV indicated that at least nine species of Chrysomelid were to be found on *bodi* plants in the field; four of these, namely *Cerotoma ruficornis* (Oliv.), *C. arcuata* (Oliv.), *Gynandrobrotica equestris* (Fab.), and *Systema s-littera* (L.), were found to be vectors in greenhouse transmission experiments. *Cerotoma arcuata*, being the numerically dominant species at all stages of crop growth and the most efficient in transmission experiments, was identified, for the first time, as the major vector of CPSMV in Trinidad.

The field population of *C. arcuata* increased from seedling emergence till late in crop growth; population peaks occurred around 50 days after planting (DAP) in the rainy season and around 50 and/or 35 DAP in the dry season. Continued population growth beyond 35 DAP was attributable to the emergence of a first generation; this was based on life cycle studies of *C. arcuata*, during which the beetle was reared for the first time.

The distribution of diseased plants during CPSMV epidemics, initially random, became clustered as the epidemic progressed indicating that the disease was spreading from plant to plant and that the epidemic was polycyclic. Disease progress curves were sigmoid; they were best linearized by regression of gompertz-transformed data indicating that the disease progressed faster during early crop growth. Significant variability in the final levels of CPSMV was observed; this was positively related to two epidemiological parameters, namely the initial disease level and the infection rate. In addition, the effect of the season of planting was observed in epidemics initiated with disease levels below 1.0 per cent; final disease levels being higher in the rainy season than in the dry season.

An integrated management programme for CPSMV control, based largely on the findings of these studies, is suggested.