

Progress Report of US AID Funded Project RG/AID/3
On the Biological Control of Insect Pests of
Vegetables in Sri Lanka for the Period March-June '84.

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Organizational

aspects : Due to the unsettled conditions prevailing in Sri Lanka in 1983, the commencement of the project was delayed. As Mr.I.D.R.Perios, to whom the award was originally made, found it difficult to accept it, it was tranfered to me.

Commencement

of project : The contractual agreement for the acceptance of this award was signed with NANESA on 28 Feb. '84 and work on the project commenced from 20 March '84.

Foreign

Consultancy : Contact was made with the C.I.B.C. station at Bangalore and with their assistance a consultant (Dr.M.J.Chacko) for the project selected. He is expected to arrive in the island during the last week of July. He is expected to made field surveys of vegetable pest problems. Advise us on the organization of the project, and the development of a bio-control lab at CARI.

Work Done Upto June '84.

This period was devoted to gathering basic information for implementation of the project. In the project proposal initial work was to be concentrated on the Diamond backed moth Plutella xylostella on cabbage and the beanfly Ophiomyia brassicoli on bean. In the case of the Diamond backed moth, information on the cabbage caterpillar complex was necessary.

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a) Identification of cabbage caterpillars: A major problem in cabbage caterpillar counts was the confusion between caterpillars of different species. To overcome this caterpillars were collected from cabbage growing at the CARI and the Inservice Training Institute, and bred to obtain adults. The larval characters were recorded and the adults identified from specimens in the insect collection at CARI. The species identified was Prodenia (Spodoptera) litura, Plusia criosama, Plutella xylostella, Hellula undalis and Crocidolomia binotalis. Collections of Plutella xylostella were very low. This may be due to the

heavy rains experienced during this year.

Study of the Biology of Cabbage Caterpillars.

In this study caterpillars of the more abundant species Prodenia (Spodoptera) litura and Crocidolomia binotalis were bred to adults. Several moths of each species was caged with cabbage plants. Observations were made of the nature and duration of eggs and different instars of the larvae.

- i. Prodenia litura : The egg mass was covered with hairs. The young larvae were gregarious, could be easily identified from other caterpillar by the black mark on the thorax. The older larvae were more solitary and readily identified by their stout greyish green bodies.
- ii. Crocidolomia binotalis : The egg masses were naked. The larvae always gregarious. Readily identified by the black tubercles on the side of the body.

From this information a key to identify cabbage caterpillars was written, to assist in future cabbage caterpillar counts.

C) Study of Bean Fly Populations.

In this study 120 bean seeds (variety top-crop) were planted every 2 weeks at the Inservice Training Institute at Gannoruwa. Before uprooting a count was taken of damaged plants. Then all the plants were uprooted. In estimating beanfly populations, at first plants were dissected for pupae. But this proved to be very tedious and hence the simpler technique of placing stems and petioles in test-tubes and counting the emerging adults was adopted. They were retained in test-tubes for 3 weeks after uprooting.

Results obtained :- Set I planted 26.4.84 uprooted 25.5.84. Damaged plants 32%.

Total number of adults and pupae per 100 seedlings = 565

Maximum number of adults and pupae in a single seedling = 20

Set II Planted 10.5.84. Uprooted 6.6.84 damaged plants 22%

Total number of adults per 100 seedlings = 619

Maximum number of adults in a single seedling	= 12
Set III Planted 26.5.84. Uprooted 22.6.84 damaged plants	33%
Total number of adults per 100 seedlings	= 405
Maximum number of adults in a single seedling	= 8

Any parasitoids which emerged was also collected. After emergence of beanfly adults some of the stems in test tubes was dissected for unemerged pupae. These were retained to collect any emerging parasitoids. In this manner several parasitoids have been collected and we hope to get them identified with the assistance of C.I.B.C. station at Bangalore.

Work in Progress

1. The beanfly population study is continuing
2. Work is being done to develop a laboratory culture of the beanfly
3. For cabbage caterpillars a study of populations under sprayed, unsprayed adjacent to sprayed fields and unsprayed and isolated conditions is in progress. The aim of this experiment is to determine the pest complex under each of these conditions, and whether there is a difference in the nature and distribution under each condition.

Staff Recruitment: A graduate research assistant registered for a M.Phil at the Post Graduate Institute of Agriculture, Peradeniya has been employed in the project.

Expenditure upto 3rd June 1984.

Research Assistant	= Rs. 2,866.52
Labour (personnel)	= Rs. 812.93
Consumables	= Ru. 76.00