

STUDIES ON SOME ECOLOGICAL ASPECTS IN RELATION TO CONTROL  
OF Spodoptera exigua (Hb.) ON ONIONS IN SRI LANKA

By

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## ABSTRACT

Biological studies of Spodoptera exigua (Armyworm) in the Northern Province of Sri Lanka, revealed that the pre-oviposition, oviposition, incubation, larval stages, pre-pupal and the pupal periods lasted 1, 1, 1.25, 1.5 and 5.25 days respectively, in captivity. The average egg mass had 25 eggs, hatching within two days. The second to fifth instars measured 3.75, 8.75, 13.75 and 26.5-mm in length. The sex-ratio of the adults was 1.4:1.

Ecological studies revealed the preferred age of the onion crop to be 15 days. The site of oviposition was found to always be on the upper half of the leaf, irrespective of crop age. The first instar larva took about 40 to 120 minutes to enter an onion leaf. The third instar moved out of the leaves after one week. Generally the later larval stages fed externally. The maximum distance a larva migrated from the site of the egg mass was found to be 20 cm.

Fields planted to the Vethala Red onion had greater leaf damage than those of small red onions. Obstructions such as hedges and tall plants prevented the infestation migrating to adjoining fields.

Five crop hosts, onions, chillies, beet root, Boerhavia and castor were evaluated in crop preference studies. For egg laying the moths preferred onion, with the Vethala Red variety being preferred over the small red onion. However, beet root was found to be the preferred host in the feeding studies using third instar larvae. Though the survival of larvae was better on Boerhavia than on beet root, body weight was significantly higher on the latter.

If temperatures between 25 C - 29 C occurred during a particular week, in the onion season, light trap catches were significantly higher

three weeks later.

The Jaffna peninsula had a history of heavy reliance on pesticides. LD<sub>50</sub> values of seven insecticides applied topically on III instar larvae were found to be fenvalerate 45, permethrin 137, acephate 171, profenofos 311, diazinon 499, methyl parathion 690 and monocrotophos 787 mg/kg. From comparison of data elsewhere the population in the Jaffna peninsula appeared to have developed resistance to methyl parathion (having a record of long use) and a certain degree of cross-resistance to acephate which had very limited use in the control of this pest.