

Note on a new cultural method of control of the lac-predator, *Eublemma amabilis* Moore (Lepidoptera : Noctuidae), based on its density-dependent oviposition behaviour

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Early attempts in evolving a laboratory-rearing technique for *Eublemma amabilis* Moore, a serious predator of the lac-insect, *Kerria lacca* (Kerr), indicated that moths preferred to lay eggs on densely settled lac colonies (Malhotra, 1971). Since effective control measures based on typical oviposition behaviour have been devised for a number of pests, e.g. the spruce beetle, *Dendroctonus rufipennis* (Kirby) (Nagel *et al.*, 1957), *Hieroglyphus nigroreplatus* Bolivar (Pradhan and Peshwani, 1961) and wheat stem-maggot, *Meromyza americana* Fitch (Branson, 1971), the possibilities of taking advantage of this behaviour in devising a suitable cultural control measure were visualized and further study on this aspect was undertaken. Broodlac infested with *E. amabilis* was placed in a cage (1.5 m × 0.5 m) and the moths were allowed to emerge in large numbers. One potted plant of pigeon-pea (*Cajanus cajan* (L.) Millsp.) for each of (i) low density (20.23 nymphs/cm², on an average), (ii) high density (130.26 nymphs/cm², on an average) of first-instar lac nymphs, and (iii) with no lac nymphs, was introduced into the cage during the evening and removed the next morning for examination. There were 3 such replications. The results revealed that when the density of lac nymphs was low, only 0.33 eggs on an average were laid, compared with 54.0 eggs on plants having a high density of lac nymphs and nil on those having no lac nymphs. As the eggs were laid on the densely settled lac colonies despite

the choice offered, there appears to be some orientation mechanism resulting in the discrimination displayed by the moths.

The pattern of egg-laying was also observed in the field at Kundri forest in the Palamau district of Bihar, where inoculations were carried out on flame-of-the-forest (*Butea monosperma* (Lam.) Taub.) trees in the second week of October 1971. Three hundred random samples from a 20-ha plot consisting of about 5,000 trees inoculated with medium brood rate of 350 g/tree and 15 samples from 50 trees inoculated with heavy brood rate of 1,200 g/tree were examined. Each sample was a 50-cm-long lac-bearing twig.

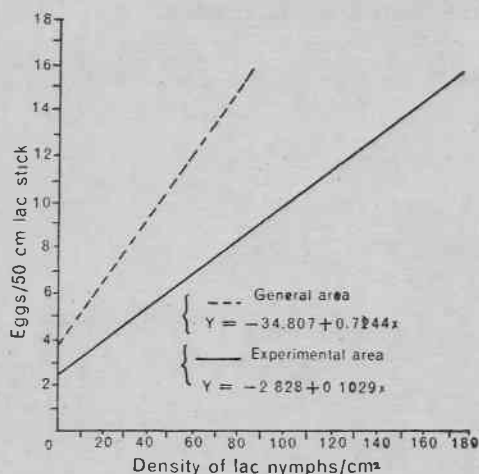


Fig. 1. Relationship between the settlement density of lac nymphs and number of eggs laid by *Eublemma amabilis*.

The number of *E. amabilis* eggs present on each sample and the average density of lac nymphs on which eggs were laid

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were recorded and the data analysed. Regression analysis (Fig. 1) revealed highly significant correlation.

Densely settled lac colonies were attractive to the moth for egg-laying and could therefore be effectively used as a trap. Our cultural control fits in well with the three-coupe crop-management system suggested by Malhotra (1963) for the flame-of-the-forest trees where, in addition to 2 lightly inoculated brood coupes, a heavily inoculated sticklac coupe was proposed. The sticklac coupe having predominantly dense colonies is likely to act as an egg-laying trap, and the trapped population will thus be inexpensively destroyed when cropped at an immature stage for obtaining sticklac as per schedule. Brood coupes having low densities are likely to escape the ravages of the pest.

For other lac hosts also, suitable modifications in crop-management systems can be introduced on the basis of this study.

This simple and inexpensive control measure can thus be included as one of the components of the integrated control schedule envisaged by Malhotra (1973) for the control of lac enemies.

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