

Preference for sites within plant by larvae of the cabbage webworm, *Hellula undalis* (Fabr.) (Lep., Pyralidae)

ABSTRACT

A comparative study on the cabbage webworm (CWW), *Hellula undalis*, with respect to larvae feeding either on the shoot or leaf of cabbage was carried out both in the laboratory and in the field. For the first 2 days after eclosion from the egg, a CWW larva would tend to remain within the mine in the leaf where the egg was deposited. The Lloyd patchiness index (x^*/x) suggested that the larval distribution was contagious, although the degree of contagiousness tended to decrease as the larvae grew due to their dispersal movement. This was indicated by the inter-plant larval movement study, in which most of these larvae were found in the shoot: 84.6% on the source plant and 40% on the neighbouring plants by the ninth day of experiment. For the larvae that fed on the shoot, the duration of the larval and pupal stages were significantly shorter and adult longevity was significantly longer, although the females laid a significantly lower number of eggs than those from larvae that fed on the leaves. However, there were no differences in the size of adults reared either on the shoot or the leaves (body lengths were 7.96 ± 0.12 and 7.82 ± 0.08 mm, respectively), and in the survivorship patterns of the adults. The moths emerging from larvae collected from the cabbage shoot in the field also lived slightly longer but laid fewer eggs than those from the leaves, with the intrinsic rate of increase (r_m) of 0.11 and 0.07, respectively. The results indicated that the CWW larvae preferred the cabbage shoot (to the leaves) which provides a natural refuge and protection for the CWW larva under field conditions, although it is relatively a poorer food type ($3.47 \pm 0.17\%$ nitrogen) than the leaf ($4.31 \pm 0.30\%$ nitrogen) ($P < 0.05$). The higher fertility of CWW bred from the leaves could possibly be related to the relatively higher percentage nitrogen in the leaves. After eclosion from the eggs, there was initial grouping of larvae in the shoot, and then an eventual decrease which could be due to the limited carrying capacity of the shoot to accommodate more than one larva.