PLANT FACTORS THAT STIMULATE OVIPOSITION BY LIGHTBROWN APPLE MOTH, *EPIPHYAS POSTVITTANA*

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The lightbrown apple moth is a serious pest of New Zealand horticulture. Its larvae are true generalists and are known to feed on more than 250 species of plants from more than 55 different families. Because the plant that the larva feeds on (at least initially) is to some extent determined by the plant that the female oviposits on, we are studying the ovipositional behaviour of this pest. Using the ornamental plant, *Camellia japonica* and assorted models, we have characterised some general plant stimuli that stimulate oviposition in females using choice bioassays and behavioural observations. By making moulds of leaves and using casts from these moulds, we showed that females prefer to oviposit on smooth surfaces with intricate fine structure, especially the veins on the leaf surface. Plant chemicals also stimulate oviposition. A non-polar extract of the epicuticular leaf lipids stimulated oviposition, whereas more polar extracts did not. The presence of volatile chemicals from leaves resulted in a significant increase in oviposition. However, we were unable to show that these chemicals influenced plant-finding (i.e., through orientation), but rather they appeared to stimulate greater on-plant activity. The implications of these data on control strategies for this pest are discussed.

FACTORS AFFECTING EGGLAYING PATTERNS BY THE LIGHTBROWN APPLE MOTH, *EPIPHYAS POSTVITTANA* (WALKER)

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The lightbrown apple moth, *Epiphyas postvittana* (Walker) is a leafroller pest of many horticultural crops in New Zealand. In order to understand better the general herbivorous nature of this pest, we are working on the host-finding and host-acceptance behaviours of the adult female moth. Female lightbrown apple moths will lay eggs on any suitable plant surface, but they do show preferences. Using preferred and less preferred ovipositional substrates we have begun to investigate how female lightbrown apple moths partition their egg-laying, and how temporal changes in this partitioning can affect the total numbers of eggs laid during the lifetime of an individual. Inhibition of egg-laying at certain times can result in a female lightbrown apple moth laying substantially fewer eggs throughout her lifetime. Thresholds of acceptance for different plants may also change with time. The results of these experiments are discussed within a context of control strategies for this pest.