BIOLOGICAL NOTES ON A GREEN FRUITWORM, *LETHOPHANE GEORGII* GRT. (LEPIDOPTERA: NOCTUIDAE), ATTACKING APPLES IN THE OKANAGAN VALLEY OF BRITISH COLUMBIA[1]

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ABSTRACT

For the past 3 seasons a green fruitworm, **Lithophane georgii** Grt., has injured apples in the Okanagan Valley of British Columbia. Larvae feed on leaves, will attack fruit early in the season causing deep russeted pits similar to those caused by the fruittree leafroller, **Archips argyrospilus** (Walker). Larvae were active from late April to early June. Pupation took place in the soil, and adults emerged in October. The insect apparently overwinters as an adult and deposits eggs early in the spring, although eggs of this species have not been found in the field.

Although larvae of **L. georgii** are capable of injuring apples observations in 1970 and 1971 indicate the numbers are so low that the species cannot be considered a major pest.

INTRODUCTION

For several years, periodic reports have been received of injury to apples caused by a large lepidopterous larva referred to by orchardists as a cutworm or a fruitworm. A survey of several apple orchards in 1970 and 1971 showed that a green fruitworm was present in limited numbers. In most instances, the fruitworms were associated with infestations of the fruittree leafroller, *Archips argyrospilus* (Walker). Both pests caused deep russeted pits in apples and the injury caused by the two insects could not be distinguished from one another on mature apples at harvest.

Green fruitworms are the larval stages of several species of moths belonging to the family Noctuidae which attack apple trees and characteristically eat deep holes in the fruit (Rings 1965). The fruitworm responsible for injury to apples in the Okanagan Valley was identified as *Lithophane georgii* Grt. by E. W. Rockburne (Entomology Research Institute, Ottawa, Canada). This species was first described by Sanders and Dustan (1919) in Nova Scotia where it was reported to attack apples. Crum (1956) gives its distribution as both the eastern and western U.S. and the adjacent provinces of Canada. Food plants for this species are listed as apple, antelope brush, ocean spray, alder and raspberry.

FIELD OBSERVATIONS ON BIOLOGY

In apple orchards in the Kelowna district of British Columbia, larvae of *L. georgii* were found feeding on developing apple leaves and blossoms at the pink bud stage of tree development. After bloom, they were found in loosely rolled leaves fastened with silk. They fed principally upon foliage, but also fed on the flesh of adjacent developing apples. This behavior is similar to that of the fruittree leafroller. Fruitworm larvae were found on apple trees from late April to early June and their distribution within an orchard was very spotty. In a routine examination for fruittree leafroller larvae in an apple orchard at Kelowna, 50 clusters on 108 trees were checked and green fruitworms were found in only 10 trees. One tree had more than 30 larvae and an average of only 2 per tree were recorded on the other 9 trees. A similar pattern of distribution was found in other apple orchards. The larvae are not gregarious, as they were always found singly at a considerable distance from another larva. They were less active when disturbed than larvae of the fruittree leafroller. Green fruitworm larvae are light green with longitudinal white lines along the dorsum (Fig. 1), and when mature are robust and 3-4 cm long.

Field collected larvae were brought into the laboratory and caged on excised apple leaves and on potted apple seedlings. Larval mortality was high, and only a few reached maturity. Mature larvae dropped to the soil, burrowed about an inch below the surface and pupated. Soil containing the pupae was placed outside in

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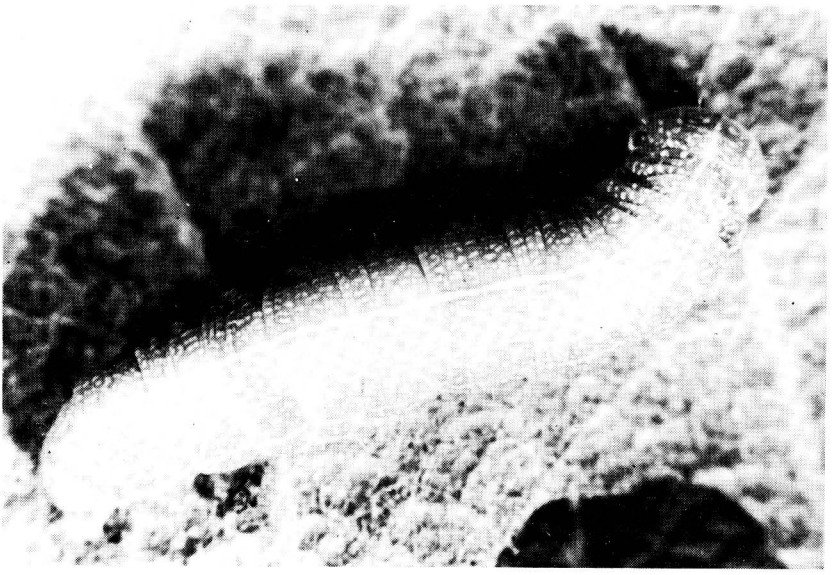

Fig. 1. Mature larva of **Lithophane georgii.**

a screenhouse, and moths emerged in October. They were typical noctuid moths, thick bodied with gray wings. These laboratory reared specimens were collected and submitted for identification.

Moth emergence in October indicates that the species overwinters as an adult which seems an unusual behavior in the cold winters of inland British Columbia. Rings (1969) reported that a related species, *Lithophane laticinerea* Grote, overwinters in Ohio as an adult and deposits eggs the following March and April.

To determine if adults were active in early spring, 2 standard 15 watt ultraviolet light traps were installed in an apple orchard at Kelowna in March. Cheesecloth bags were fitted to the base of the traps in order to collect live moths. Several male and female *L. georgii* were captured in March and early April. They were placed in cloth sleeve cages on tree limbs in the hope that mating and oviposition would occur. No eggs were laid on the leaves, blossoms or bark of the caged limbs. Branch samples were collected at random from this orchard and examined in the laboratory, but eggs were not found on these samples. Moths of *L. georgii* are evidently active early in the season, but the location and distribution of eggs is still unknown.

Very few *L. georgii* larvae were found during the 1971 season in either commercial or abandoned orchards. The species may exist in low numbers naturally, or unknown factors may influence their abundance from season to season. It is evident from field observations made during the last two seasons that damage caused by the fruittree leafroller is difficult to distinguish from that caused by the green fruitworm. Probably, a portion of the injury caused by fruittree leafroller has been incorrectly identified as green fruitworm damage.

References

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