

**CIHM
Microfiche
Series
(Monographs)**

**ICMH
Collection de
microfiches
(monographies)**



Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

© 1997

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming are checked below.

- Coloured covers / Couverture de couleur
- Covers damaged / Couverture endommagée
- Covers restored and/or laminated / Couverture restaurée et/ou pelliculée
- Cover title missing / Le titre de couverture manque
- Coloured maps / Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black) / Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations / Planches et/ou illustrations en couleur
- Bound with other material / Relié avec d'autres documents
- Only edition available / Seule édition disponible
- Tight binding may cause shadows or distortion along interior margin / La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure.
- Blank leaves added during restorations may appear within the text. Whenever possible, these have been omitted from filming / Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- Additional comments / Commentaires supplémentaires:

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured pages / Pages de couleur
- Pages damaged / Pages endommagées
- Pages restored and/or laminated / Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed / Pages décolorées, tachetées ou piquées
- Pages detached / Pages détachées
- Showthrough / Transparence
- Quality of print varies / Qualité inégale de l'impression
- Includes supplementary material / Comprend du matériel supplémentaire
- Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image / Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.
- Opposing pages with varying colouration or discolourations are filmed twice to ensure the best possible image / Les pages s'opposant ayant des colorations variables ou des décolorations sont filmées deux fois afin d'obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below / Ce document est filmé au taux de réduction indiqué ci-dessous.

10x	14x	18x	22x	26x	30x
12x	16x	20x	✓	24x	28x

The copy filmed here has been reproduced thanks to the generosity of:

Library
Agriculture Canada

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol → (meaning "CONTINUED"), or the symbol ▽ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:

1	2	3
---	---	---

1	2
4	5

L'exemplaire filmé fut reproduit grâce à la générosité de:

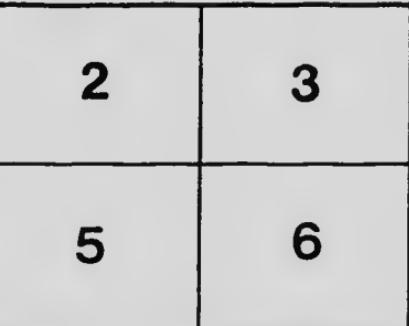
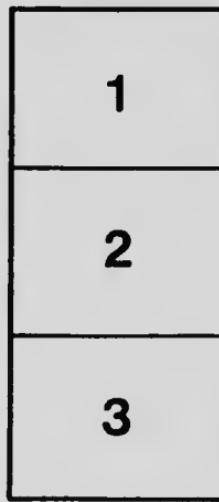
Bibliothèque
Agriculture Canada

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires origineux dont la couverture en papier est imprimée sont filmés en commençant par le premier page et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par la seconde page, selon le cas. Tous les autres exemplaires origineux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

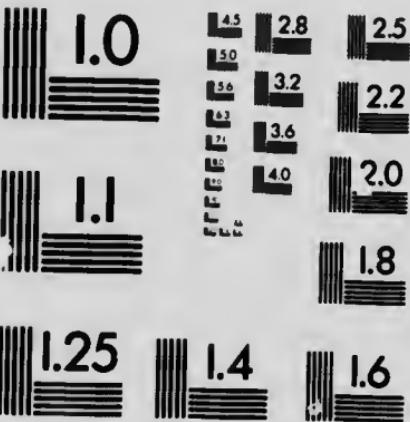
Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole → signifie "À SUIVRE", le symbole ▽ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.



MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



APPLIED IMAGE Inc

1653 East Main Street
Rochester, New York 14609 USA
(716) 482 - 0300 - Phone
(716) 288 - 5989 - Fax

CIRCULAR No. 38
(New Horticultural Series).



PROVINCE OF BRITISH COLUMBIA.

DEPARTMENT OF AGRICULTURE
(HORTICULTURAL BRANCH).

THE LESSER APPLE-WORM
(*Laspeyresia prunivora* Walsh). ;
CODLING-MOTH
(*Cydia pomonella* Linn.).

OWING to the similarity of the larva or caterpillar of the lesser apple-worm to that of the codling-moth, fruit-growers should become familiar with the appearance of each of these "worms." It is not an easy matter to make a definite determination in the field; hence, if there is any doubt, specimens should be sent immediately to officials of the Department of Agriculture. The two larvæ, when full-grown, are easily separated.

Fruit-growers of British Columbia are fortunate in having only a few isolated instances where the codling-moth is known to occur. It is sufficient, to prove this assertion, to draw attention to the published statements of Dr. A. L. Melander, Entomologist of the Pullman Agricultural Station, who claims that the codling-moth exacts an annual tax of \$200,000 on the yield of 1,500 car-loads of apples in the State of Washington, and to the record of Professor H. . Wilson, formerly of the Corvallis Experiment Station, who states that the annual loss amounts to 25 per cent. of the total crop in Oregon.

In view of these statements and of many others which could be quoted, it is urgently necessary for all fruit-growers in the Province

of British Columbia to keep a watchful eye open for any sign of doubtful injury and to report the same immediately.

The two larvæ may be separated in the following manner:—

Lesser Apple-worm.

Shape: Fusiform, i.e., tapering towards each end, broadest along the middle segments.

Colour: Pink in young stages; flesh colour when nearly full-grown.

Size: When full-grown, about $\frac{3}{8}$ inch long.

Microscopic structures: Terminal segment of body with a brown comb-like structure, varying from 5-7 teeth.

The work of the two larvæ varies also, although instances have been observed of the injury to fruit being so closely similar that the identity of the "worms" could not be definitely determined. Both larvæ feed on the fruit of the apple, entering through the calyx or through the side and burrowing to the core.

As a general rule, the larva of the lesser apple-worm feeds extensively on the flesh of the apple as it penetrates towards the core, while the codling-moth larva forms a more direct channel. It appears that the lesser apple-worm develops a trifle later than the codling-moth in the spring and continues feeding a little longer on the fruit in the autumn, otherwise the life-histories of the two moths are very similar. In this way the lesser apple-worm develops proportionately more "side-hole" entries than the codling-moth, which, especially with the first spring generation, enters more particularly through the calyx. This variation of habit in the two worms is not to be regarded as a definite rule in all sections of the Province, inasmuch as in cooler and

Codling-moth.

More even width throughout.

Young stages, white with a shade of pink; half-grown (or when of same size as lesser apple-worm larva), dirty white, marked with black dots; full-grown, pinkish-white, with more or less prominent tubercles.

When full-grown, about $\frac{3}{4}$ inch long.

Terminal segment without a comb; rounded and covered with several prominent spines.

moister sections the number of "side-hole" entries equal, if they do not exceed, the calyx entries.

The control of the codling-moth may be dealt with in another circular. The control of the lesser apple-worm necessitates special



Dar
the
apple
The
direct

to apple by the lesser apple-worm. The injury resembles
codling-moth larva, but it will be noticed that the lesser
feeds more on the surface of the fruit around the calyx.
larva, if entrance is made through the calyx, usually passes
the center of the fruit. (Author's illustration.)

attention to the ordinary arsenical orchard sprays a few weeks after the petals fall, at approximately a time when the winter apples are 1 inch in diameter. Wherever systematic orchard spraying is practised the lesser apple-worm is not a serious pest. Its importance to the growers of British Columbia lies in its closer resemblance to the codling-moth, which is a pest of first magnitude in apple- and pear-growing sections.

Victoria, B.C., issued March, 1918.

This circular has been prepared by R. C. Treherne, Field Officer for British Columbia, Entomological Branch, Dominion Department of Agriculture, at the request of the Horticultural Branch.

Copies of this circular may be obtained free of charge on application to the Horticultural Branch, Department of Agriculture, Victoria, B.C., or from local branch offices of the Department.

VICTORIA, B.C.:

Printed by WILLIAM H. CULLIN, Printer to the King's Most Excellent Majesty.
1918.



