Insect pests and their control - Codling moth in Western Australia

C. F. H. Jenkins

Follow this and additional works at: https://researchlibrary.agric.wa.gov.au/journal_agriculture3

Recommended Citation
Jenkins, C. F. H. (1956) "Insect pests and their control - Codling moth in Western Australia," Journal of the Department of Agriculture, Western Australia, Series 3: Vol. 5 : No. 6 , Article 8.
Available at: https://researchlibrary.agric.wa.gov.au/journal_agriculture3/vol5/iss6/8
The discovery of codling moth (Cydia pomonella L.) at Bridgetown in March, 1956, makes the seventeenth occasion on which this insect has been reported in Western Australia in a little over fifty years. The pest has never become firmly established in this State, but since 1903 outbreaks have been recorded at the following centres (Wickens 1928; Jenkins 1947):

- Albany 1903
- Perth, four outbreaks between 1904 and 1913.
- Katanning 1913
- Bridgetown 1915
- Caversham 1918
- North Dandalup 1924
- Collie 1925
- Narrogin 1926
- Collie 1934
- Mumballup 1937
- Collie 1947
- *Mullalyup 1951
- *Nannup 1951
- †Bridgetown 1956

LIFE HISTORY

Under normal seasonal conditions, the first brood moths appear in the early spring and lay their eggs on the blossoming apple and pear trees. The caterpillars bore into the developing fruit and after reaching maturity eat their way out again and shelter in some suitable crack or crevice on or near the tree.

* Freed from quarantine in 1956.
† There is nothing to associate the present outbreak at Bridgetown with either of the 1951 outbreaks. The exact cause of the latest infestation cannot be proved definitely, but there is considerable evidence to suggest that the outbreak was caused by infested material brought overland from the Eastern States by one of the previous owners.

The second brood moths emerge during the early summer and the resulting caterpillars may be found in the fruit until well on in the season. After leaving the fruit, most of the second brood caterpillars seek out suitable hiding places in which they may carry over the winter, but some may pupate and give rise to a third brood of moths in late March or early April.

The overwintering caterpillars do not feed or travel unless disturbed, but they may be an important factor in the dissemination of the pest, as fruit cases, timber and other movable objects are often chosen as hiding places.
With the arrival of warm weather in the following spring the overwintering caterpillars pupate and give rise to another batch of first brood moths.

**SUITABILITY OF WESTERN AUSTRALIA FOR CODLING MOTH ESTABLISHMENT**

Western Australia is probably the only extensive apple growing area in the world in which the codling moth is not established and strict quarantine regulations prohibiting the introduction of some fruits (apples, pears and quinces) were early introduced to protect local fruit growers. The long list of outbreaks demonstrates that no system of quarantine is perfect and shows that constant vigilance is necessary on the part of growers. The fact that 16 outbreaks have been successfully eradicated, however, has given rise to the belief in some quarters that this State is unsuitable for the establishment of the pest and it has been suggested that certain outbreaks have been recrudescences of earlier infestations. The severity of several of the outbreaks has clearly demonstrated the ability of the pest to thrive under local conditions and the fact that long periods have elapsed between some outbreaks shows the unlikelihood of a pest such as codling moth surviving unperceived during the intervening space of time.

**METHODS OF INTRODUCTION**

In no instance has the exact cause of any particular outbreak been traced but it is not difficult to suggest several means by which codling moth could reach the State. During the war years, parcels forwarded from the Eastern States to troops stationed in Western Australia were found on several occasions to contain “codling” infested apples. With the improvement of air, rail and road transport the opportunity for ignorant or indifferent travelers to introduce infested fruits is ever increasing and is a constant menace. There are, however, other means by which “codling” caterpillars may enter the State. On leaving the fruit the caterpillars hide under any litter or bark to spin their silken cocoons and often choose a fruit or packing case for this purpose.

Apples reaching Eastern States jam and sauce factories would contain a certain number of “codling” grubs and there is always the danger that some grubs may spin in packing cases or other merchandise and be later carried further afield. The fact that most local outbreaks have occurred either at ports or busy industrial centres supports this contention.

It may be asked why several outbreaks have occurred at Collie in comparatively recent years while none have been reported in Perth since 1913. This is easily explained by the fact that at one time, apple and pear trees were not uncommon within the city limits and codling moths flying in the metropolitan area would have had little difficulty in finding suitable food plants. This is not the case at present,
however, whereas in the Collie area there is a profusion of fruit trees including apples and pears in almost every backyard offering every facility to caterpillars or moths transported into the district.

**CO-OPERATION BETWEEN MEMBERS OF THE PUBLIC AND THE DEPARTMENT OF AGRICULTURE**

The successful eradication of previous codling moth outbreaks has been greatly facilitated by the ready co-operation of members of the public. In several instances early action has been possible only because growers and purchasers of caterpillar infested fruits have immediately submitted suspicious looking material to the Department of Agriculture for checking.

**HOW TO RECOGNISE CODLING MOTH**

The illustrations accompanying this article will indicate the type of injury caused by the “codling” caterpillar. The “grub” is pinkish in colour and slightly under 3⁄4 in. in length. There are several other caterpillars with which it may be easily confused, however, and growers are advised to immediately forward specimens to the Department of Agriculture should anything of a suspicious nature be encountered.

**ERADICATION MEASURES**

The action taken to deal with outbreaks of codling moth in this State has been designed to bring about total eradication rather than control. For this reason, the measures adopted locally have been much more rigorous than those applying in other parts of the world where good commercial control only is the objective.

**Quarantine**

Special conditions have been applied to the movement of fruit from defined “infested areas” and the removal of certain fruit from such areas has been totally prohibited.

**Manual Destruction of Grubs**

The careful inspection of infested trees and neighbouring structures such as fences and sheds likely to harbour pupating caterpillars has been intensively enforced.

Double hessian bandages around the butts of trees in infested zones have proved effective traps for the mature caterpillars, and the periodic killing of insects hiding in these bandages has proved a useful supplement to the insecticidal treatment.

**Spray Programme**

Arsenate of Lead was the main insecticide used against the early codling moth outbreaks but in recent years the emphasis has been on DDT.

The object of the spray programme is to maintain a constant insecticidal cover over the fruit and foliage throughout the active season of the codling moth. As the first moths may commence egg-laying in October and as the last fliers may not appear until March or April, repeated sprayings are necessary.

Details of the spray schedule will not be given here as the particular requirements may vary from time to time and from place to place. Growers implicated however, will receive full instruction from the Departmental Officers organising any eradication campaign.

**REFERENCES.**


Fig. 5.—1, Moth on wing (magnified 4 times); 2, Moth at rest (magnified 4 times); 3, Pupa (magnified 3½ times); 4, Pupa case, after moth has emerged; 5, Adult larva or caterpillar (magnified 3½ times)