



Stone Fruit Commodity-Based Pest Survey

False Codling Moth

Thaumatotibia leucotreta

Introduction

False codling moth (Figure 1) is a significant pest because of its potential economic impact on many crops, including stone fruit, avocado, citrus, corn, cotton, and macadamia. It is not currently known to be present in the United States.

Biology

Depending on conditions, the false codling moth's life cycle ranges from 30 to 174 days. It can produce from 2 to 10 generations each year, depending on multiple factors including temperature, food availability and quality, and humidity.

To attract males, adult females release pheromones at night. After the adults mate, the female deposits eggs on host plants, either in batches or as single eggs. Later, the hatching larvae burrow into the rind of the host plant. Mature larvae spin cocoons and pupate before they emerge as adults.

Symptoms

False codling moth can attack stone fruit at any stage. Larvae can even develop in hard green fruit prior to application of control measures. Larvae burrow at the stem end into the fruit and cause damage by feeding around the stone. Damaged fruit can become vulnerable to secondary pests such as fungal organisms and scavengers. Peaches can be damaged by larvae beginning up to 6 weeks before harvest. False codling moth can also attack plants unsuitable for larvae development, such as avocado, causing lesions on fruit tissue and diminishing the marketability of fruit.

Because false codling moth is an internal feeder, few symptoms are actually displayed by the larvae. Brown spots on fruit and dark brown frass (residue or excrement from the larvae) are visible signs of an infestation. When larvae exit the fruit to enter the third stage (pupa), the rind around the point of infestation will turn yellowish-brown as the tissue decays and collapses (Figure 2). Exit holes are approximately 1 millimeter in diameter. Infested fruit may also develop spots and mold. Premature ripening and fruit drop can also occur with infestations.

Infestations can be difficult to detect in peaches when fruit is still firm and on the tree. This poses a threat to industry because potentially infested fruit could be sold without the knowledge that the pest is present.



FIGURE 1. Adult false codling moth (*Thaumatotibia leucotreta*). Photo courtesy of Pest and Diseases Image Library, Bugwood.org.

Symptoms for specific crops, including corn, cotton, and grapes, can be found in Stibick's "New Pest Response Guidelines: False Codling Moth *Thaumatotibia leucotreta*" [Stibick, J. 2006. New Pest Response Guidelines: False Codling Moth *Thaumatotibia leucotreta*. U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine. Online: http://www.aphis.usda.gov/import_export/plants/ppq_manuals.shtml.] and Sullivan et al.'s "Corn Commodity-based Survey Reference" [Sullivan, M., MacKinnon, D., Price, T., Wright, R.J., and Jackson, T.J. 2010. Corn Commodity-based Survey Reference. Cooperative Agricultural Pest Survey (CAPS). Online: http://caps.ceris.purdue.edu/survey/manual/corn_reference.].

Hosts

Major hosts include: stone fruit (*Prunus* spp., *Prunus armeniaca*, *Prunus domestica*, and *Prunus persica*), avocado (*Persea americana*), carambola (*Averrhoa carambola*), castor bean (*Ricinus communis*), Chinese lantern (*Abutilon x hybridum*), citrus (*Citrus* spp.), coffee (*Coffea arabica*), corn (*Zea mays*), cotton (*Gossypium* spp.), flowering maple (*Abutilon hybridum*), guava (*Psidium guajava*), litchi (*Litchi chinensis*), macadamia (*Macadamia* spp.), mango (*Mangifera indica*), oak acorns (*Quercus* spp.), okra (*Abelmoschus esculentus*), olive (*Olea* spp.), peppers (*Capsicum* spp.), pineapple (*Ananas comosus*), pomegranate (*Punica granatum*), sorghum (*Sorghum bicolor*), and tea (*Camellia sinensis*).

Distribution

False codling moth is found in the following countries: Angola, Benin, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Congo, Dahomey, Eritrea, Ethiopia, Gambia, Ghana, India, Ivory Coast, Kenya, Madagascar, Malawi, Mali, Mauritius, Mozambique, Niger, Nigeria, Nyasaland, Réunion, Rhodesia, Rwanda, Saint Helena, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanganyika, Tanzania, Togo, Uganda, Upper Volta, Zaire, Zambia, Zanzibar, and Zimbabwe.

Identification

This species can be identified by examining the insect's form and structure (morphological examination). Larvae can be identified by examining specimens under a microscope. Identification should be carried out by an experienced identifier who is familiar with the arrangement of setae (bristle-like structures) on the larvae. This species can be confused with codling moth (*Cydia pomonella*), which is currently present in the United States; close examination of the pest's characteristics is needed to distinguish the two species.

Survey

A trap and lure combination is the common method used to survey for this pest. Details on trap type and lure compounds can be found at <http://pest.ceris.purdue.edu/services/napisquery/query.php?code=cam2012>.

What Can We Do?

If you find an insect that you suspect is the false codling moth, please contact your local extension office or State plant regulatory official to have the specimen properly identified. For contact information, visit www.aphis.usda.gov/StateOffices, www.nationalplantboard.org/member/index.html, or www.nifa.usda.gov/Extension/index.html.

References for the above information can be found on the Cooperative Agricultural Pest Survey (CAPS) Web site at <http://caps.ceris.purdue.edu/stonefruit/references>.

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FIGURE 2. Damage caused by false codling moth on citrus. Photo courtesy of J.H. Hofmeyr, Citrus Research International, Bugwood.org.