



# BUG BIZ

Pest Management and Insect Identification Series



## *Diaphania nitidalis* and *Diaphania hyalinata*, Pickleworm and Melonworm Moths (Lepidoptera: Crambidae)

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### Description

The genus *Diaphania* includes two pest species in Louisiana that affect crops in the cucumber family (Cucurbitaceae), which includes squash, zucchini, mirliton (in south Louisiana), pumpkin, gourd, cucuzzi, cantaloupe, cushaw, luffa and cucumber. Adults of both species are similar in size, with wingspans of 1.25 inches (32 mm) when fully spread. The forewings of pickleworm moths are mainly dark brown with a yellow spot near the middle. The hindwings are mainly yellow, bordered by brown. Wings of melonworm adults are mainly silvery white with broad, brown borders. Melonworm larvae are pale green with two white dorsal stripes and measure 0.8 inch to 1 inch (20 to 25 mm) in length when fully developed. Pickleworm larvae are similar in shape and size of the melonworm larvae, but differ in coloration. They are yellowish with several dark or brown spots distributed along the body.



Left: Pickleworm Adult (Natasha Wright, Cook's Pest Control, Bugwood.org). Right: Melonworm Adult (Mark Dreiling, Bugwood.org).

### Life Cycle

Moths undergo a complete metamorphosis, passing through egg, larva, pupa and adult stages. Both species complete their life cycle in approximately 30 days, depending on weather conditions. Eggs are deposited at night on buds, stems, undersides of leaves and small fruits.



Left: Melonworm larvae (Alton N. Sparks Jr., University of Georgia, Bugwood.org). Right: Pickleworm larvae (Clemson University-USDA Cooperative Extension Slide Series, Bugwood.org).

Newly hatched caterpillars usually feed on the undersides of new leaves. Melonworms feed principally on leaves as they mature. However, if available leaves are minimal, or the plant is of a less preferred species such as cantaloupe, larvae may feed on the surface of the fruit or even bore into the fruit. Blossoms are favorite feeding sites for pickleworm caterpillars, especially young larvae. Larvae may complete their development without boring into the fruit by moving among blossoms if enough are available.



Pickleworm in new buds (David Held, Auburn University, Bugwood.org).

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Pickleworm damage (Alton N. Sparks, Jr., University of Georgia, Bugwood.org).

Melonworm adults remain within the crop during the daytime. They are generally inactive during the day but will fly when disturbed. Pickleworm moths are rarely found in the fields during daylight hours and move to areas with weedy plants during the heat of the day.

When larvae mature they pupate in a leaf fold. The larvae use leafy debris to construct a shelter. As many as five broods may be completed annually in Louisiana.

## Ecological Significance and Pest Status

Both Louisiana species of *Diaphania* affect foliage and fruits of plants, causing external damage that decreases fruit quality and reduces foliage. Pickleworm caterpillars may also move among blossoms, feeding and destroying the plant's ability to produce fruit. In addition to reducing fruit quality, fungal and bacterial diseases may develop once entry has occurred.

Microbial insecticides based on *Bacillus thuringiensis* are recommended for control of melonworms, but not for pickleworms because of the internal feeding habits of the pickleworm larvae. To achieve greater effectiveness of these biological products, applications must be made from the moment the first instar larvae initiate infestations.

For cucurbit production, pollination plays a critical role, and insecticide applications can cause problems by killing pollinator species. However, if an insecticide application is justified, broad-spectrum insecticides are not recommended, and applications should be made late in the day when pollinator activity is minimal. Also, as with all pesticides, follow the label instructions carefully with regard to rates and precautions. Please see the Louisiana Insect Pest Management Guide (Publication No. 1838) for currently approved insecticides for control of these insects.

Research has demonstrated cucurbit resistance to both insects is based on the female moths' preference for some varieties during egg laying. However, there are no current commercially available cucurbit cultivars with resistance available in the state of Louisiana. Sex pheromones of both species have been discovered and synthesized. However, they are not used for monitoring of these pests.

## References

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PUB3781 (online) 4/21

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