

LepIntercept

An identification resource for intercepted Lepidoptera larvae



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CRAMBIDAE - *Diaphania nitidalis* (Stoll) *Non-Rep*

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Taxonomy

Pyraloidea: Crambidae: Spilomelinae: *Diaphania nitidalis* (Stoll)

Common names: pickleworm

Synonyms: *Diaphania vitralis*

Larval diagnosis (Summary)

- Genal spot is present
- SV group on A1 is bisetose
- Mandible lacks an outer tooth (projection)
- Crochets on A3-6 in a mesal penellipse
- No black spot posterior to the SD2 seta on the prothorax
- Early instars have pigmented pinacula and a thick dark oval on the prothoracic shield
- Late instars have pale pinacula and an unmarked prothoracic shield

Host/origin information

Diaphania nitidalis is commonly intercepted on *Cucumis*, *Cucurbita*, and *Sechium* (cultivated cucurbits; Cucurbitaceae) from Central America. More than 93% of the interception records in PestID are from the following origin/host combinations:

| Origin | Host(s) |
|--------------------|---|
| Costa Rica | <i>Sechium</i> |
| Dominican Republic | <i>Coccinea</i> , <i>Cucurbita</i> , <i>Sechium</i> |
| Guatemala | <i>Cucurbita</i> , <i>Sechium</i> |
| Haiti | <i>Cucurbita</i> , <i>Sechium</i> |
| Honduras | <i>Cucumis</i> |
| Mexico | <i>Cucumis</i> , <i>Cucurbita</i> , <i>Sechium</i> |

Recorded distribution

Diaphania nitidalis is distributed throughout the New World tropics. Individuals move into temperate areas during the summer but are unlikely to overwinter outside of tropical or subtropical regions. This species is also found in Hawaii.

Identification authority (Summary)

Origin and host are important information for making positive identifications of this species. There are no confirmed records of *D. nitidalis* outside of the New World (and Hawaii), so identifications should be restricted to larvae originating from these locations on cultivated cucurbits.

Pest characterization

(Based on Cavey 2001, Passoa 1985)

- Taxonomy: **High**. Species identification is often possible.
- Distribution: **Low**. *Diaphania nitidalis* is present in the U.S.
- Potential Impact: **High**. *Diaphania nitidalis* is a serious pest.

This ranking characterizes *Diaphania nitidalis* as not quarantine significant for the U.S.

Larval diagnosis (Detailed)

The larva of *D. nitidalis*, the pickleworm, was partially described by Peterson (1962), Negm (1968), Weisman (1986), Neunzig (1987), Solis (1999, 2011) and Schnitzler et al. (2011). Passoa

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Fig. 1: Late instar, lateral view



Fig. 2: Mid-instar, lateral view



Fig. 3: Early instar, lateral view



Fig. 4: Head and thorax; note genal spot



Fig. 5: SV group on A1



Fig. 6: Crochets



Fig. 7: Head



Fig. 8: Hypo. complex

(1985) included setal maps for both the early and late instars. Color photographs can be found in King and Saunders (1984), Passoa (1985), Sparks and Liu (2001) and Heu et al. (2005).

Typically, the larva of *D. nitidalis* has a genal spot, the SV group of A1 bisetose, no outer tooth on the mandible, the crochets of A3-6 in a mesal penellipse and no black spot posterior to the SD2 seta on the prothorax (Passoa 1985). The D1 setae are longer than D2 on A1-7, but on A8 the situation is reversed, D2 is longer than D1. The early instars have pigmented pinacula and a characteristic pattern on the prothoracic shield forming a thick oval. Both early and late instars have the V1 pinaculum of A3-6 bandlike and SD1 on A2 and A7 are normal in size.

Unlike *D. hyalinata* and *D. indica*, *D. nitidalis* lacks an outer tooth (projection) on the mandible above the lateral setae and has a genal spot. Live larvae of *D. nitidalis* lack the white subdorsal longitudinal stripes found in *D. hyalinata* and *D. indica*. Both the *D. hyalinata-indica* complex and *D. nitidalis* have a row of microspines at the base of the proleg, but the distribution of this character in Crambidae has not been studied.

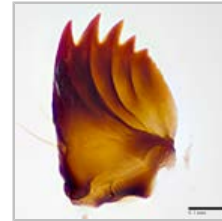


Fig. 9: Mandible

Identification authority (Detailed)

Because hundreds of species of pyraloids could have the major features of *D. nitidalis* (no outer tooth, a genal spot and bisetose SV group on A1), host and origin are important clues for identification of this species. Except for Hawaii (Heu et al. 2005), there are no confirmed records for *D. nitidalis* outside of the New World. Hosts are always cucurbits, other records are potential misidentifications of the caterpillar or host. *Diaphania nitidalis* is considered a complex (CIE 2000), but apparently none of the sibling species are found on crop plants. Therefore, restrict identifications of *D. nitidalis* to New World and Hawaii interceptions on cultivated cucurbits until other closely related species are studied more closely.

Origin records

Diaphania nitidalis has been intercepted from the following locations:

Armenia, Bahamas, Bangladesh, Brazil, Canada, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Guadeloupe, Guatemala, Haiti, Hawaii, Honduras, India, Iran, Jamaica, Mexico, Panama, Peru, Puerto Rico, Romania, Senegal, Suriname, Trinidad and Tobago, Turkey, Uruguay, Venezuela, Zimbabwe

Locations from outside of the New World (and Hawaii) likely represent misidentifications.

Host records

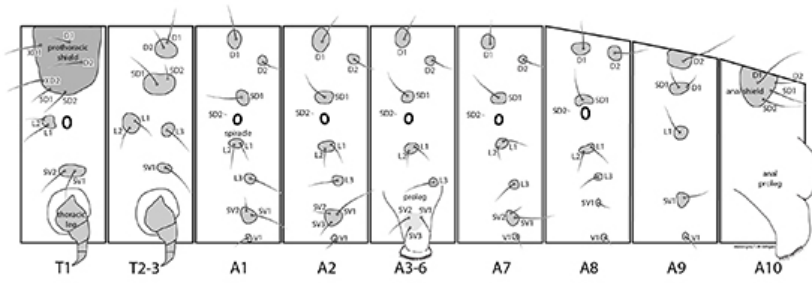
Diaphania nitidalis has been intercepted on the following hosts:

Abelmoschus esculentus, *Abelmoschus* sp., *Amaranthus* sp., *Annona cherimola*, *Apium graveolens*, *Artocarpus altilis*, *Artocarpus heterophyllus*, *Benincasa hispida*, *Brassica pekinensis*, *Brassica* sp., *Cajanus cajan*, *Capsicum annum*, *Capsicum* sp., *Carica papaya*, *Chamaedorea* sp., *Chenopodium berlandieri* ssp *nuttalliae*, *Chenopodium* sp., *Cichorium intybus*, *Citrus aurantiifolia*, *Coccinea grandis*, *Coccinia* sp., *Cocos nucifera*, *Colocasia esculenta*, *Coriandrum sativum*, *Cucumis anguria*, *Cucumis melo*, *Cucumis melo* var. *inodorus*, *Cucumis sativus*, *Cucumis* sp., *Cucurbita maxima*, *Cucurbita moschata*, *Cucurbita pepo*, *Cucurbita* sp., *Cucurbitaceae*, *Cyamopsis* sp., *Cyamopsis tetragonoloba*, *Dianthus* sp., *Diospyros virginiana*, *Inga* sp., *Lactuca* sp., *Lagenaria siceraria*, *Lepidium* sp., *Leucaena pulverulenta*, *Lilium* sp., *Luffa acutangula*, *Luffa* sp., *Malus domestica*, *Mangifera indica*, *Manihot esculenta*, *Manilkara zapota*, *Mentha piperita*, *Mentha* sp., *Momordica balsamina*, *Momordica charantia*, *Momordica* sp., *Murraya koenigii*, *Musa* sp., *Nicotiana tabacum*, *Ocimum basilicum*, *Olea europaea*, *Opuntia* sp., *Phaseolus* sp., *Phaseolus vulgaris*, *Physalis ixocarpa*, *Physalis philadelphica*, *Physalis pubescens*, *Physalis* sp., *Piper* sp., *Pongamia pinnata*, *Pouteria sapota*, *Prunus domestica*, *Quercus* sp., *Rumohra* sp., *Sechium edule*, *Sechium* sp., *Solanaceae*, *Solanum aethiopicum*, *Solanum lycopersicum* var *lycopersicum*, *Solanum melongena*, *Solanum quitoense*, *Solanum* sp., *Spinacia oleracea*, *Spondias* sp., *Urtica* sp., *Vigna unguiculata*, *Xanthosoma* sp., *Zea mays*

Hosts listed above that are not cultivated cucurbits need verification. Trees (oak, citrus), monocots (lily), and *Opuntia* are especially suspect.

Setal map

Diaphania nitidalis (Stoll)



Gilligan, T.M. & S.C. Passoa. 2014. *LepIntercept*. An identification resource for intercepted Lepidoptera larvae. Identification Technology Program (ITP), USDA/APHIS/PPQ/SS.T, Fort Collins, CO (accessed at www.LepIntercept.org).

Diaphania nitidalis setal map



[Click here to download a full-size printable PDF of this larval setal map](#)

LepIntercept - An identification resource for intercepted Lepidoptera larvae by Todd M. Gilligan and Steven C. Passoa
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