

Mini data sheet on *Chloridea virescens* (Lepidoptera: Noctuidae)
Tobacco budworm

Chloridea virescens was added to the EPPO A1 List in 2024. A full datasheet will be prepared, in the meantime you can view here the data which was previously available from the EPPO Alert List (added to the EPPO Alert List in 2023 - deleted in 2024).

Why: *Chloridea virescens* (Lepidoptera: Noctuidae - tobacco budworm), formerly placed in the genus *Heliothis*, occurs in the Americas where it is a polyphagous pest of many field crops, in particular cotton, maize, tomato, and tobacco (hence its common name). *C. virescens* was identified in the EPPO Study on Pest Risks Associated with the Import of Tomato Fruit as a potential threat to tomato crops, and recently, the European Union has established measures to prevent its introduction into the EU territory, also considering that it had been intercepted on consignments of fruit and vegetables imported from the Americas.

Where: *C. virescens* occurs throughout the Eastern and South-Western USA. Generally, it overwinters only in southern states, but it annually migrates towards the north. It is occasionally found in northern US states and southern Canada, surviving in greenhouses or other sheltered locations. It is widespread in the Caribbean and sporadically found in Central and South America.

EPPO region: absent.

North America: Canada (Ontario), Mexico, USA (Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Illinois, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Nebraska, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington, West Virginia).

Central America and the Caribbean: Barbados, Costa Rica, Cuba, Dominican Republic, El Salvador, Guadeloupe, Haiti, Jamaica, Martinique, Nicaragua, Puerto Rico, Saint Lucia, Trinidad and Tobago, Virgin Islands (US).

South America: Argentina, Bolivia, Brazil (Bahia, Distrito Federal, Espirito Santo, Goias, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Parana, Rio Grande do Sul, Roraima, Sao Paulo), Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela.

On which plants: *C. virescens* is a highly polyphagous pest (feeding on at least 55 species in 14 families). It is mainly a pest of field crops such as: alfalfa (*Medicago sativa*), clover (*Trifolium* spp.), cotton (*Gossypium* spp.), flax (*Linum sativum*), soybean (*Glycine max*), and tobacco (*Nicotiana tabacum*). It can also attack fruit and vegetables crops (e.g. asparagus (*Asparagus officinalis*), cabbage (*Brassica* spp.), melon (*Cucumis melo*), lettuce (*Lactuca sativa*), pea (*Pisum sativum*), cucurbits, tomato (*Solanum lycopersicum*) and *Vitis* spp.), as well as ornamentals (e.g. chrysanthemum, gardenia, pelargonium, petunia, verbena, zinnia). A large number of weeds or wild plants have also been reported as larval hosts (e.g. *Geranium dissectum*, *Lonicera japonica*, *Medicago lupulina*, *Rumex* spp., *Sida spinosa*).

Damage: Larvae bore into buds and blossoms. Larvae can also feed on tender terminal foliar growth, leaf petioles and stalks, as well as on leaves in the absence of other growing plant tissues. They can also feed on fruit, and attacked fruit may then be more susceptible to secondary infections by pathogens.

Adults are brownish moths, 28 to 35 mm long. In Southern US states, they emerge in spring (March to May). Spherical eggs are deposited on blossoms, fruit, and terminal growth. Females normally produce 300-500 eggs. *C. virescens* has 5 to 7 instars and fully-grown larvae

are 25.5-36 mm long, their body colour is variable from pale green to pinkish, reddish or brownish with whitish dorsal and lateral bands. Pupation takes place in the soil. In the USA, 4 to 5 generations have been observed with an overwintering period (as pupae) starting in autumn (September to November).

Pictures can be viewed on the Internet:

<http://mothphotographersgroup.msstate.edu/species.php?hodges=11071>

<http://pnwmoths.biol.wvu.edu/browse/family-noctuidae/subfamily-heliiothinae/chloridea/chloridea-virescens/>

Dissemination: Adult moths can fly over long distances. In North America, it has been observed that the pest annually spreads northwards during summer. Over long distances, *C. virescens* can be transported on plant material. Several EU countries have reported interceptions of *C. virescens* on imported consignments of fruit and vegetables (e.g. *Abelmoschus esculentus*, *Asparagus officinalis*, and *Physalis peruviana*) from several countries (e.g. Colombia, Dominican Republic, Mexico, and Peru).

Pathways: Fruits and vegetables, plants for planting of host plants, cut flowers, soil, from countries where *C. virescens* occurs.

Possible risks: Several host plants of *C. virescens* are economically important crops in the EPPO region (e.g. cotton, maize, tobacco, tomato, ornamentals). According to the EPPO Study on Pest Risks Associated with the Import of Tomato Fruit, the climatic similarity between the areas where the pest occurs and the EPPO region is high. *C. virescens* probably has the potential to establish outdoors in the Southern part of the EPPO region. It could also be a threat to greenhouse crops. Risk assessment studies (Express-PRA and Quick-scan) carried out by Germany and the Netherlands reached a similar conclusion. At the EU level, it has been considered that although further risk assessment studies were needed, it was necessary to take measures to avoid the introduction of *C. virescens* in the EU territory (Commission Implementing Regulation (EU) 2022/1941).

Sources

CABI (online) Crop Protection Compendium. Datasheet on *Heliothis virescens* (tobacco budworm).

<https://www.cabidigitallibrary.org/doi/full/10.1079/cabicompium.26774>

Commission Implementing Regulation (EU) 2022/1941 of 13 October 2022 on the prohibition of introduction, movement, holding, multiplication or release of certain pests pursuant to Article 30(1) of Regulation (EU) 2016/2031 of the European Parliament and of the Council. OJL 268, 13-15. http://data.europa.eu/eli/reg_impl/2022/1941/oj

Dutch NPPO (2020) Quick scan on *Chloridea virescens*. 4 pp.

<https://english.nvwa.nl/documents/plant/plant-health/pest-risk-analysis/documents/quickscan-chloridea-virescens>

EPPO (2015) EPPO Technical Document No. 1068, EPPO Study on Pest Risks Associated with the Import of Tomato Fruit. EPPO Paris.

https://www.eppo.int/media/uploaded_images/RESOURCES/eppo_publications/td_1068_tomato_study.pdf

JKI (2022) Express PRA zu *Chloridea virescens* (Express PRA on *C. virescens*- import for research and breeding purposes). https://pflanzenegesundheit.julius-kuehn.de/dokumente/upload/Chloridea-virescens_exprPRA.pdf

University of Florida. Featured Creatures by JL Capinera. *Heliothis virescens* (revised in 2018).

https://entnemdept.ufl.edu/creatures/field/tobacco_budworm.htm (last accessed 2023-01).

Ventura MU, Roberto SR, Hoshino AT, Carvalho MG, Hata FT, Genta W (2015) First record of *Heliothis virescens* (Lepidoptera: Noctuidae) damaging table grape bunches. *Florida Entomologist* **98**(2), 783-786