

New pests affecting tomatoes in Europe

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Among the pests with high risk for the countries of the EPPO region are the following species from the family Noctuidae: *Chrysodeixis (Pseudoplusia) includens* (Lepidoptera: Noctuidae), *Spodoptera ornithogalli* (Lepidoptera: Noctuidae) ("yellow-striped armyworm"), *Heliothis virescens* (Lepidoptera: Noctuidae) (tobacco budworm)

***Chrysodeixis (Pseudoplusia) includens* (Lepidoptera: Noctuidae)**

Host plants: *C. includens* is polyphagous, attacking plants from 28 families, but is considered mainly a pest of soybean and tomato. Among the other plants, alfalfa, tobacco, bean, soybean, maize, cotton, cabbage, lettuce, as well as ornamental species such as geranium, hibiscus, pelargonium, chrysanthemum and others should be noted.

Damage: The moths lay their eggs on the leaves; the larvae feed on them or on the fruits (in tomato the larvae feed inside the fruit) and pupate on the leaves. Although it attacks many plants, the following damage is observed on the main hosts – soybean and tomato:

- In tomato, the larvae feed mainly on the fruits, even when foliage is available.
- In soybean, after completely destroying the foliage, the larvae move to the pods and feed on them.

Dispersal: In the USA, adults (moths) overwinter in the southern states, where it is warmer (Florida and southern Texas). After warming in spring, they migrate northwards to the other states. The climate in the southern states is similar to that in the Mediterranean. Upon introduction into Europe, the moths can overwinter successfully and in spring migrate to other, more northern countries such as Bulgaria.

Pathways of introduction: Fruit and vegetables, plants for planting, cut flowers, pods of host plants, from countries where they are present.

Possible risk: The risk analysis is assessed as high, due to the fact that *C. includens* attacks a wide range of hosts grown in the countries of the region. If the pest is introduced, it will be able to overwinter in Mediterranean countries and migrate northwards.

***Spodoptera ornithogalli* (Lepidoptera: Noctuidae) (“yellow-striped armyworm”)**

Host plants: Polyphagous, attacking a wide range of plants such as tomato, pepper, eggplant, potato, tobacco, onion, peanut, family Brassicaceae, Cucurbitaceae, cotton, flax, rice, maize, bean, pea, soybean, sunflower, alfalfa, carrot, cucumber, sugar beet, asparagus.

Damage: The moth lays its eggs on the leaves. After hatching, the larvae feed on them, but also on the fruits of tomato, pepper, cotton. The pest pupates in the soil. *S. ornithogalli* is mentioned as a major pest in the southern part of the USA on vegetables: tomato, pepper, legumes, cucurbits, as well as tobacco, soybean, maize, alfalfa.

Dispersal: Over short distances it spreads by the flight of adults.

Pathways of introduction: In new areas the pest is introduced with vegetable fruits, plants for planting, cut flowers of host plants, originating from countries where *S. ornithogalli* occurs.

Possible risk: *S. ornithogalli* attacks many crops that are of primary importance for Europe. According to the study of the European and Mediterranean Plant Protection Organization (EPPO), there is a high risk of introduction of the pest into the region. It cannot overwinter in the north, but during the growing season it may spread and establish in greenhouses.

***Heliothis virescens* (Lepidoptera: Noctuidae) (tobacco budworm)**

H. virescens is polyphagous and attacks 55 species from 14 families. Tomato, tobacco, potato, cotton, legumes, maize, pepper, lettuce, maize, as well as flowers such as geranium, ageratum, chrysanthemum, gardenia, petunia, verbena, zinnia and others.

Damage: The female moths lay their eggs on the flowering or fruiting parts of the plant and the hatched larvae feed on leaves, flowers and fruits. The larvae damage or destroy buds and flowers, may penetrate into the fruits and feed on the seeds. They pupate in the soil. The pest causes significant damage to tomato, tobacco, cotton and maize.

Dispersal: The moths can fly over long distances. In North America the pest overwinters in the southern parts and in summer spreads northwards through the flight of the moths.

Pathways of introduction: Vegetable fruits, plants for planting, cut flowers, soil from countries where *H. virescens* is present.

Possible risk: Tomato and the other host plants are major crops for Europe. According to the study of the European and Mediterranean Plant Protection Organization (EPPO), the climatic conditions are suitable and the risk of introduction of the pest is high, especially for the southern parts of the region, where it can overwinter.