Egyptian cottonworm *Spodoptera littoralis*

The Egyptian cottonworm is a highly polyphagous defoliator of many cultivated plants. Its accidental introduction to Michigan may be a particular concern to vegetable, fruit and ornamental industries.

Michigan risk maps for exotic plant pests.

Other common names

African cotton leafworm, Egyptian cotton leafworm, Mediterranean Brocade moth

Systematic position

Insecta > Lepidoptera > Noctuidae > *Spodoptera littoralis* (Boisduval)

Global distribution

Most parts of Africa. Southern or Mediterranean Europe: Greece, Italy, Malta, Portugal, Spain. Middle East: Israel, Syria, Turkey.

Quarantine status

The Egyptian cottonworm has been intercepted at least 65 times at U.S. ports of entry since 2004 (Ellis 2004). This insect has been detected in greenhouses in Ohio but was subsequently eradicated (Passoa 2008). It is listed as an exotic organism of high invasive risk to the United States (USDA-APHIS 2008).

Plant hosts

A wide host range of at least 87 plant species over 40 plant families including many vegetable, fruit and ornamental crops. Some examples include alfalfa, apples, avocados, beets, bell peppers, cabbage, carrots, cauliflower, cereal, clover, corn, cotton, cucurbits, eggplants, figs, geraniums, grapes, lettuce, oaks, okra, onions, peas, peanuts, pears, pines, poplars, potatoes, radish, roses, soybeans, spinach, sunflowers, taro, tea, tobacco, tomatoes and watermelons.

Biology

A female moth lays masses of eggs on the underside of young leaves. Eggs are then coated with scales from the female's abdomen. After egg hatch, caterpillars feed on leaves and also may feed on stems, buds, flowers and fruits. Pupation occurs just below the soil surface in a clay cocoon. Seven generations per year have been observed in Egypt.

Identification

- **Adult**: Wingspan 35-40 mm; forewings gray-brown with white oblique bands; hind wings pale with brown margins.
- **Larva**: Body up to 45 mm long and hairless; newly hatched larvae are blackish-grey to dark green; mature larvae are reddish-brown or whitish-yellow; larvae have dark and light longitudinal bands and two dark, semi-circular spots on their back.
- **Pupa**: 20 mm long; initially green with reddish abdomen, then turn to dark reddish-brown.
- **Eggs**: Whitish-yellow egg mass covered with hair scales from mother.

The Egyptian cottonworm can be easily confused with another exotic *Spodoptera* species of concern, Oriental leafworm, *Spodoptera litura* and other *Spodoptera* species present in the United States. A close examination by a trained taxonomist is needed to distinguish them.

Adult. (Photo: O. Heikinheimo, Bugwood.org)

Larva. (Photo: Biologische Bundesanstalt für Land- und Forstwirtschaft Archive, Biologische Bundesanstalt für Land- und Forstwirtschaft, Bugwood.org)

Signs of infestation

- Presence of an egg mass (4-7 mm in diameter) covered

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Pupae. (Photo: E. M. Hegazi, University of Alexandria, Bugwood.org)

Egg mass covered with hairy scales. (Photo: Bugwood.org)

with hairy scales on the underside of a young leaf.

- Larvae on leaves, stems, buds, flowers and fruits.
- Leaves with holes or skeletonized leaves.

Management notes

Survey and regulatory procedure guidelines for *Spodoptera* have been developed (Elise 2004). Eggs, larvae and larval feeding damage can be surveyed by visually inspecting leaves of host plants. Sweep net sampling may be effective at dawn or dusk (Venette et al. 2003). Light or pheromone-based traps have been recommended for monitoring adults. Effective synthetic sex pheromones are available for trapping male moths (Venette et al. 2003, Witzgall et al. 2004).

Economic significance to Michigan

The moth is considered a devastating pest in its native range. Because of its wide plant host range, Egyptian cottonworm, if introduced into Michigan, can potentially disrupt production and marketing of many agricultural and ornamental crops. Venette et al. (2003) have predicted that the moth can establish in much of the continental United States including Michigan based on climatic suitability and the wide host range. There is already an economically important *Spodoptera* complex (armyworms) present in Michigan and additional invasion could further complicate *Spodoptera* management.

Likely pathways of entry in Michigan

Imports of live plants from Africa, Southern Europe, and the Middle East.

If you find something suspicious on a susceptible host plant, please contact MSU Diagnostic Services (517-355-4536), your county extension office, or the Michigan Department of Agriculture (1-800-292-3939).

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