Oriental leafworm *Spodoptera litura*

The Oriental leafworm is a highly polyphagous defoliator on many cultivated plants. Its accidental introduction into Michigan may be a concern in particular to vegetable, fruit and ornamental plant nurseries and producers.

Michigan risk maps for exotic plant pests.

Other common names

cluster caterpillar, common cutworm, cotton cutworm, cotton leafworm, rice cutworm, taro caterpillar, tobacco budworm, tobacco caterpillar, tobacco cutworm, tropical armyworm

Systematic position

Insecta > Lepidoptera > Noctuidae > *Spodoptera litura* (Fabricius)

Global distribution

Widely distributed in Asia and Oceania.

Asia: Afghanistan, Bangladesh, Cambodia, China, Hong Kong, Indonesia, India, Iran, Japan, Laos, Malaysia, Myanmar, Nepal, North Korea, Oman, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, Vietnam. **Oceania**: Australia, Guam, New Caledonia, New Zealand, Micronesia, Papua New Guinea, Samoa, other Pacific islands. **United States**: Hawaii.

Quarantine status

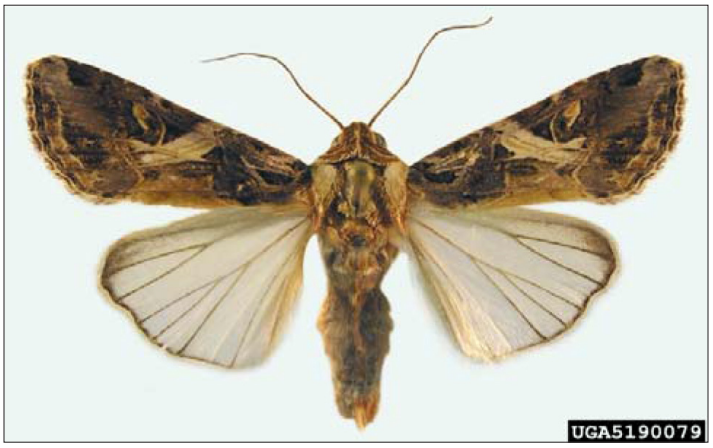
Spodoptera species including the Oriental leafworm have been intercepted at U.S. ports 1,759 times between 1985 and 2003 (Vennette 2003). The moth was detected from a Florida nursery facility in 2007 and regulatory measures were placed immediately (UF/IFAS Pest Alert 2007). This insect is listed as an exotic organism of high invasive risk to the United States (USDA-APHIS 2008).

Plant hosts

A wide host range over 120 plant species are known including many vegetable, fruit and ornamental crops. Some examples are: alfalfa, alpinia, amaranth, apples, asparagus, beets, broccoli, cabbage, carrots, chrysanthemum, corn, cruciferous crops, dry beans, eggplants, fuchsia, geranium, gladiolus, grapes, hibiscus, leek, lettuce, mint, orchid, pink, potatoes, radish, roses and sunflowers.

Biology

A female moth lays masses of eggs on the underside of young leaves. After egg hatch, caterpillars feed on leaves. They are first gregarious and later solitary. They also may feed on stems, buds, flowers and fruits. Pupation occurs in soil several centimeters deep without a cocoon. A life cycle completes on average of 25 days.



Adult. (Photo: Natasha Wright, Florida Department of Agriculture and Consumer Services, Bugwood.org)

Adult. (Photo: M. Shepard, Gerald R.Carner, and P.A.C Ooi, Insects and their Natural Enemies Associated with Vegetables and Soybean in Southeast Asia, Bugwood.org)

Identification

- **Adult**: 15-20 mm long and a wingspan of 30-38 mm; forewings gray-brown with white oblique bands; hind wings pale with brown margins.
- **Larva**: Body up to 45 mm long and hairless; larval color varies from pale green to dark green to brown as they develop; mature larvae have three yellow longitudinal lines, one on the top and one on each side; a row of black dots runs on each side and two parallel rows

Prepared by T. Noma, M. Colunga-Garcia, M. Brewer, J. Landis, and A. Gooch as a part of Michigan State University IPM Program and M. Philip of Michigan Department of Agriculture.

Larva. (Photo: K. Kiritani, , Bugwood.org)

Egg mass covered with hairy scales (Photo: M. Shepard, G. R.Carner, and P.A.C Ooi, Insects and their Natural Enemies Associated with Vegetables and Soybean in Southeast Asia, Bugwood.org)

of black triangles run on the top side.

- **Eggs**: Whitish-yellow egg mass (4-7 mm in diameter) covered with hair scales from mother.

Note: The Oriental leafworm can be easily confused with another exotic *Spodoptera* species of concern, Egyptian cottonworm, *Spodoptera littoralis*, and other *Spodoptera* species present in the United States.

Signs of infestation

- Presence of an egg mass (4-7 mm in diameter) covered with hair scales on the underside of young leaves.
- 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), and sex pheromones of the oriental leafworm have been identified

Economic significance to Michigan

The moth is regarded as a major economic pest in its native range. Because of its wide plant host range, the Oriental leafworm, if introduced into Michigan, can potentially disrupt production and marketing of many agricultural and ornamental crops. Venette et al. (2003) have forecasted the moth can establish in much of the continental United States including Michigan based on climatic suitability and wide host range. There are already economically important *Spodoptera* species (armyworms) present in the state and additional invasion could further complicate *Spodoptera* management.

Likely pathways of entry in Michigan

Imports of live plants from Asia and Oceania.

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).

References

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