

Western yellow-striped armyworm: Biology and management basics

Will Price, Darrin Walenta and Seth J. Dorman

Background and life cycle

The western yellow-striped armyworm (*Spodoptera praefica*) is a species of moth in the Noctuidae family that can cause severe damage to forage and grass seed crops from late May through mid-September. Adult moths can migrate from the southern regions of the United States.

Adults have a wingspan of about 1.5 inches with brownish-gray front wings and silver-gray hind wings (Figure 1). The larval stage is when the armyworms cause economic damage. The caterpillars grow from 1/8 inch to 2 inches at maturity. Caterpillars have a distinct black body with yellow stripes running the length of the body on both sides (Figure 2).



Figure 1. Adult western yellow-striped armyworms have a wingspan of about 1.5 inches.

Credit: Ken Gray Collection, © Oregon State University



Figure 2. Western yellow-striped armyworm larvae. Larvae may reach sizes between 1.5 and 2 inches in length.

Credit: Ken Gray Collection, © Oregon State University



Figure 3. Western yellow-striped armyworm eggs.

Credit: Ken Gray Collection, © Oregon State University

Adult moths lay eggs in clusters on the upper side of leaves. Egg clusters are covered in a gray, cotton-like material (Figure 3). Eggs may hatch within a week, and larvae feed and grow for 14–21 days.

Overall, the lifecycle of the western yellow-striped armyworm from egg to adult is approximately 40 days. Late-season larvae overwinter as pupae in the soil; therefore, multiple warm, dry winters can result in a buildup of populations, causing more severe damage.

Data from 2022 and 2023 in Baker and Union counties has identified early August as the time of the first peak in moth flight (Figure 4); however, the exact timing of emergence is currently not known for Northeast Oregon. This suggests that there are likely two generations per year. It may be possible for a third generation, depending on elevation, the frost-free period and June temperatures favorable for larvae emergence.

In 2022 and 2023, there were reports of small populations resulting in limited damage to forage and grass seed crops throughout Baker County and Union County. In July 2023, we received a report of an isolated outbreak in a single alfalfa field that reduced the second-cutting yield by 20%–30%.

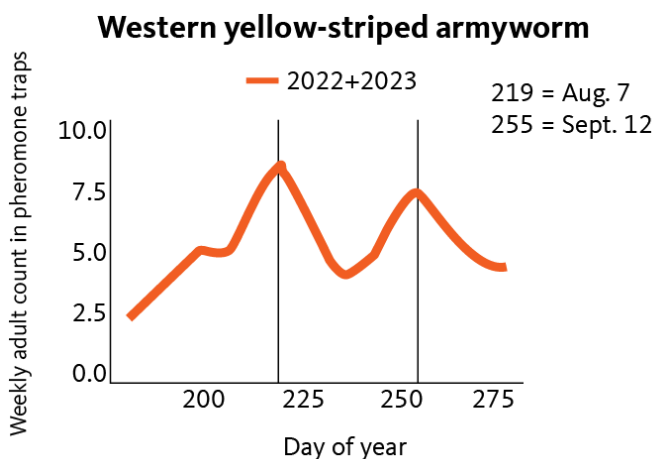


Figure 4. Count of adult moths in pheromone traps in Northeast and Central Oregon during 2022 and 2023. Timing of peak flights are August 7 and September 12.

Credit: © Oregon State University

Monitoring and control

The most effective method of monitoring fields for western yellow-striped armyworm is to use pheromone traps for adult moths, followed by scouting fields for larvae. Walking the field and inspecting the foliage and crowns of plants may be sufficient to determine if larvae are present. Surveillance using a sweep net is the most efficient method of sampling for small caterpillars and making timely decisions on insecticide applications.

Although the western yellow-stripe armyworm is native to the Pacific Northwest, reports of crop damage are a relatively new occurrence in Northeast Oregon. Thus, we have not identified specific thresholds for economic damage. However, the University of California IPM Program suggests an economic threshold of 15 or more caterpillars per sweep using a 15-inch diameter sweep net.

Hot, dry summers can cause the larvae to concentrate in green fields, forming an “army” and causing extensive crop damage.

If the infestation is identified within one week of a planned hay cutting, it may not be necessary to treat the field. Cutting the standing crop will help maintain the yield while preventing the larvae from reaching maturity, reducing the population of future generations.

Cultural practices that can mitigate the impacts of western yellow-striped armyworms include field sanitation processes:

- Store baled hay for one to three weeks before transport to prevent transporting larvae to new fields.
- Inspect hay before transport and delivery to ensure no worms are transported in the bales.
- Clean hay equipment (cutters, rakes and balers) after working in affected fields to prevent transporting larvae to clean fields.

Western yellow-striped armyworms' natural enemies may play an important role in managing populations. These enemies include big-eyed bugs, spiders, minute pirate bugs, damsel bugs, lacewings and parasitic wasps.

If an infested field has been recently cut or is not scheduled to be cut for a number of weeks, it may be necessary to treat it with an insecticide. Reduce the abundance of western yellow-striped armyworms after cutting to keep the insects from impacting the crop's regrowth. Heavy or dense foliage can reduce the effectiveness of chemical treatments, so treating prior to regrowth can increase the effectiveness of spray applications.

A number of products and biological control agents are registered for use in alfalfa and grass hay to control western yellow-striped armyworms. See the [Pacific Northwest Pest Management Handbook](https://pnwhandbooks.org/insect/hay-pasture/alfalfa/alfalfa-hay-armyworm) (<https://pnwhandbooks.org/insect/hay-pasture/alfalfa/alfalfa-hay-armyworm>).

Always read and follow the label for application instructions and restrictions. Contact your local Extension office for specific questions about choosing an insecticide.

Resources

- Acheampong, S. [Western Yellowstriped Armyworm](https://www.oiso.ca/species/western-yellowstriped-armyworm/) (<https://www.oiso.ca/species/western-yellowstriped-armyworm/>). Okanagan Invasive Species Online.
- Pacific Northwest Moths. [Spodoptera praefica](http://pnwmoths.biol.wvu.edu/browse/family-noctuidae/subfamily-noctuinae/tribe-prodeniini/spodoptera/spodoptera-praefica/) (<http://pnwmoths.biol.wvu.edu/browse/family-noctuidae/subfamily-noctuinae/tribe-prodeniini/spodoptera/spodoptera-praefica/>)(Grote, 1875). 93-2217.
- Pacific Northwest Pest Management Handbook. [Alfalfa hay-Armyworm](https://pnwhandbooks.org/insect/hay-pasture/alfalfa/alfalfa-hay-armyworm). (<https://pnwhandbooks.org/insect/hay-pasture/alfalfa/alfalfa-hay-armyworm>)
- Rojas-Sandoval, J. 2023. *Spodoptera praefica* (western yellow-striped armyworm). CABI Compendium Datasheets, Issue 077, datasheet 51077.
- Summers, C.G., 1989. [Effect of Selected Pests and Multiple Pest Complexes on Alfalfa Productivity and Stand Persistence](https://doi.org/10.1093/jee/82.6.1782). (<https://doi.org/10.1093/jee/82.6.1782>) Journal of Economic Entomology 82, 1782–1791.
- University of California IPM. 2017. [Western Yellowstriped Armyworm](https://ipm.ucanr.edu/agriculture/alfalfa/western-yellowstriped-armyworm/). (<https://ipm.ucanr.edu/agriculture/alfalfa/western-yellowstriped-armyworm/>) UC ANR Pub. 3430.
- Washington State University. [Western Yellow Striped Army Worm](https://entomology.wsu.edu/outreach/bug-info/army-worm/). (<https://entomology.wsu.edu/outreach/bug-info/army-worm/>) WSU College of Agricultural, Human and Natural Resource Sciences, Department of Entomology.

About the authors



Will Price

<https://extension.oregonstate.edu/people/will-price>

Assistant Professor of Practice



Darrin Walenta

<https://extension.oregonstate.edu/people/darrin-walenta>

Agronomist

Seth J. Dorman

Research Entomologist

USDA-ARS, Forage Seed and Cereal Research Unit

© 2024 Oregon State University. Extension work is a cooperative program of Oregon State University, the U.S. Department of Agriculture, and Oregon counties. Oregon State University Extension Service offers educational programs, activities, and materials without discrimination on the basis of race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, familial/parental status, income derived from a public assistance program, political beliefs, genetic information, veteran's status, reprisal or retaliation for prior civil rights activity. (Not all prohibited bases apply to all programs.)

Accessibility: This publication will be made available in an accessible alternative format upon request. Please contact puborders@oregonstate.edu or 541-737-3311.