

Pest Common Name (Scientific Name)

True Armyworm (*Mythimna unipuncta*)
 Bertha armyworm (*Mamestra configurata*)
 Fall armyworm (*Spodoptera frugiperda*)
 Beet armyworm (*Spodoptera exigua*)
 Western yellowstriped armyworm (*Spodoptera praefica*)
 Many others in the family Noctuidae

Host Plants

- Crops: alfalfa (hay and seed), cereals, corn, forage grasses, oilseeds, potato, pulses (green and dry), sugar beet, hemp, hops, mint, others
- Fruits and vegetables: apple, pear, onion, leafy greens, tomato, others
- Herbaceous landscape plants, ornamentals, weeds, and turfgrass
- Hundreds of host plants across all armyworm species



Figure 1. True armyworm (*Mythimna unipuncta*) larva on sorghum (left) and adult (right). Courtesy of Ronald Smith, Auburn University, Bugwood.org (left) and Whitney Cranshaw, Colorado State University, Bugwood.org (right).

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Integrated Pest Management of Armyworms

Description

Adult armyworms (Figures 1–5) generally are mottled grey and brown moths, with wingspans ranging from 1 to 1¼ inches (25–45 millimeters). Larvae (caterpillars) vary widely in color, from light tan to green to dark brown, typically with longitudinal lines along the entire body, and range in length from ½ to 1¾ inches (1–44 mm), depending on the species and the stage. Larvae are generally smooth in appearance, with three pairs of legs near the head and five pairs of fleshy leg-like appendages near the posterior end. Most species have between six and nine larval growth stages (instars). Armyworm larvae are sometimes seen moving in massive groups across the ground and can defoliate large areas in a short period of time. It is this movement in large groups and destructive potential that give them the common name, “armyworm.” Eggs are usually laid in clusters on leaves of host plants and vary widely in color, depending on the species.



Figure 2. Bertha armyworm (*Mamestra configurata*) larva on common hop (left) and adult (right). Courtesy of David Gent, United States Department of Agriculture (USDA) Agricultural Research Service (ARS), Bugwood.org (left) and Hanna Royals, Screening Aids, USDA Animal and Plant Health Inspection Service Plant Protection and Quarantine, Bugwood.org (right).



Figure 3. Fall armyworm (*Spodoptera frugiperda*) larva on corn (left) and adult (right). Courtesy of Frank Peairs, Colorado State University, Bugwood.org (left) and Billy R. Wiseman, USDA ARS, Bugwood.org (right).



Figure 4. Beet armyworm (*Spodoptera exigua*) larva on pigweed (left) and adult (right). Courtesy of Whitney Cranshaw, Colorado State University, Bugwood.org.



Figure 5. Western yellowstriped armyworm (*Spodoptera praefica*) larva (left) and adult (right). Courtesy of the Ken Gray Insect Image Collection.



Figure 6. Fall armyworm damage to soybean leaves. Courtesy of John C. French Sr. (retired), Universities of Auburn, Georgia, Clemson, and Missouri, Bugwood.org.



Figure 7. Fall armyworm damage to corn. Courtesy of University of Georgia, Bugwood.org.

Biology

Armyworms overwinter as pupae in the upper few inches of a soil profile. Adults emerge anywhere between March and July, depending on the species, to disperse, mate, and lay eggs. Just-hatched larvae are tiny, but often remain in groups near the egg mass and can skeletonize leaves or completely defoliate small seedlings. As they grow larger, they disperse within the same plant or travel to new host plants. In many species, larvae are nocturnal, feeding on foliage during the night, and rest during the day in cracks and crevasses in the soil. Depending on the species, larvae may be of concern anywhere between July through early October. However, if there is a mild enough winter agronomists in Idaho and adjoining states have seen damage from armyworms, notably the fall species, from December into the early spring months.

There are generally one to three generations per growing season.

Damage

Armyworms feed on plant leaves (Figure 6), stems, and sometimes on belowground tissue such as upper roots or tubers when they are exposed or accessed through cracks in the soil. Damage to young shoots can be severe, including complete defoliation or stem severance. In more mature plants, leaves display rough, irregular holes or are entirely skeletonized. Larvae can also bore into the ears of corn and heads of leafy greens (Figure 7).

Monitoring

Some armyworm adults (i.e., fall, bertha, and beet armyworm) can be monitored with pheromone-baited traps starting around June. Keep in mind that each pheromone lure only attracts males of a single species, so consider what species are most likely to be problematic when selecting a lure. Often, lure traps are used as an early detection method to indicate when armyworms are present and active and when more in-depth monitoring should begin. Larvae can also be monitored using a beat sheet or sweep net, though note that many species only actively feed during the night. Use soap flushing to monitor for larvae in the summer in turfgrass.

Few studies have been conducted to establish formal economic treatment thresholds for armyworms in Idaho and the Pacific Northwest. When deciding if treatment is warranted, check the [PNW Pest Management Handbooks](#) website to see if guidelines exist for the crop you are interested in treating. If no threshold exists, consider the vulnerability of the crop and the likelihood and severity of damage. For instance, although most vegetables are rarely attacked by the majority of armyworm species, corn is a frequent exception and sometimes sustains severe damage. Also, consider that older plants usually tolerate much more damage than younger ones before damage reaches economic levels.

Management

Primary Management Tactics

Armyworm populations are generally held in check by natural enemies, so conserve these populations by avoiding unnecessary applications of broad-spectrum insecticides. Indeed, chemical management is typically only necessary when infestation and defoliation are severe or if armyworms are present when plants are in a highly vulnerable growth stage.

Cultural

- Remove weeds, particularly grasses, since they may serve as alternative host plants.
- Keep plants healthy, but do not exceed fertilizer or irrigation recommendations since overly maintained areas attract armyworms and foster population growth.
- Till in the fall to reduce overwintering survival rates.
- In turfgrass, avoid heavy thatch accumulation.
- If armyworms have reached economic thresholds, early harvest may be advisable since armyworms often die from lack of food and high temperatures postharvest. However, it is possible for some armyworms to move to adjacent fields after harvest.

Biological

- Avoid using broad-spectrum insecticides to conserve natural enemies of armyworm, such as big-eyed bugs (*Geocoris*), damsel bugs (*Nabis*), and many species of ground beetle (Carabidae), rove beetle (Staphylinidae), and parasitic wasps and flies.
- Many fungal pathogens naturally occur in the field and hold populations in check.
- Multiple biological insecticides (e.g., *Bacillus thuringiensis* and Spinosad) are available; see the [PNW Pest Management Handbooks](#) website for more information on bioinsecticide usage.

Chemical

- Armyworms are generally held in check by natural enemies. Avoid using insecticides unless infestation and defoliation are severe enough.
- Foliar sprays are most effective at night when most larvae are actively feeding. Spraying at night also reduces harm to foraging pollinators.
- Recommendations for pesticides to use in the management of armyworms can be found on the [PNW Pest Management Handbooks](#) website.

Caution: Read Pesticide Labels

Pesticide labels override other recommendations.

ALWAYS read and follow the instructions printed on the pesticide label. The pesticide recommendations in this UI webpage do not substitute for instructions on the label. Pesticide laws and labels change frequently and may have changed since this publication was written. Some pesticides may have been withdrawn or had certain uses prohibited. Use pesticides with care. Do not use a pesticide unless the specific plant, animal, or other application site is specifically listed on the label. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

Trade Names — To simplify information, trade names have been used. No endorsement of named products is intended nor is criticism implied of similar products not mentioned.

Groundwater — To protect groundwater, when there is a choice of pesticides, the applicator should use the product least likely to leach.