



Southwest MN IPM STUFF

All the pestilence that's fit to print

True Armyworm

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The mere mention of armyworms can cause angst in those who have experienced outbreaks, and the news of armyworms in the area can trigger unnecessary insecticide applications. Fortunately, other than taking some time, scouting for armyworms is fairly straightforward and they are easily controlled with insecticides.



Armyworm larvae. Note the banding on the abdominal prolegs.

Biology

The true armyworm (*Mythimna unipuncta*, formerly known as *Pseudaletia unipuncta*, Haworth) are relatives of cutworms and are in the Noctuidae moth family.

These are not the tent caterpillars that feed on broadleaf trees and shrubs that are called armyworms by some.

Armyworms are native to eastern North America, but they cannot overwinter in MN. Each spring, they migrate north like their black cutworm cousins. Armyworm tend to be more abundant in cool, wet years. Heat and dry weather are hard on armyworm eggs and small larvae. Because migrant moths drop out of low-level jet streams with thunderstorms, armyworm infestations are sometimes found in areas that have received hail.

Armyworm moths target specific environments in which to lay eggs. Areas of dense grasses

are favored egg laying sites. Field edges near lodged grassy areas, lodged small grains and corn that had earlier areas of heavy grass weed problems should be checked. Armyworm infestations have also been associated with corn planted into rye cover crops.

Armyworm larvae have their share of problems. They are often heavily parasitized by flies and wasps, and they can be infected by fungal and virus diseases. Eggs of fly parasites can sometimes be seen behind the heads of larvae, and the cocoons of parasites cover some infested larvae.

The true armyworm prefers to feed on grasses. In previous infestations, I have seen armyworms clean out the weedy grasses in a sunflower or bean field and ignore the broadleaf crop. However, they have occasionally been reported as a pest on some broadleaves. This may be a result of larvae migrating when depleting their food. Hungry larvae will move a fair distance to find a new food source. The “armies” can easily cross a road and feed well into a field on the other side in a single night.

Armyworms have multiple, but distinct, generations in Minnesota. There are six larval instars (stages), and most of the vegetation is consumed during the last week of larval life. Larvae are approximately 1½ inches long when mature. When these larvae begin to move underground to pupate, the year’s risk is over.

Identification

The larvae can range from tan and olive to nearly black in color. The pattern of a dark band flanked by white bordered pink to orange bands on along the side is a distinguishing character; as is the net-like pattern on the head and a dark band at the base of the abdominal prolegs.



Early instar true armyworm. Note net-like reticulations on head and the pattern of bands on the body. This moth larva has five pairs of prolegs. Color can vary from tan-olive to nearly black.

Scouting and management

The presence of a large migration flight of true armyworm into Minnesota can be detected with black light traps. The capture of moths can predict when a problem is likely and when it will occur but, because immigrant moths can re-migrate, not where the problem will occur. Pheromone traps for true armyworm are available; however, what the captures mean in relation to crop damage is unclear.

Chewing damage on crop leaves and the presence of frass (insect fecal pellets) on plants and on the ground indicate that an insect was present. The presence of live larvae indicates the potential for future damage exists.

Armyworm larvae are most active at night and cloudy days. During the heat and bright sunlight, larvae often hide under leaf litter on the ground. Scouting and insecticide applications are often more effective near dawn and dusk and on cloudy days. When disturbed, armyworms drop to the ground and curl into a C-shape to “play possum”. Preliminary scouting for armyworms in small grains, field edges and even grassy areas within row crops can be done with a sweep net. Once armyworms are found, switch to a crop specific scouting method.



2013 armyworm damage to corn. Note the weedy grasses killed by herbicide. Photo: Tyson Kaldenberg

Wheat, barley, oats

Pay close attention to areas that are lodged, near lodged grass borders or have grassy weeds when trying to detect larval populations. When an economic armyworm infestation is suspected in a small grain field, populations per square foot should be estimated. Shake the plants and look for larvae on the ground in a square foot area. In small grains the treatment threshold is 4-5 larvae/square foot. Check under debris and soil clumps. Do this in at least 5 locations within the field.

The larvae occasionally clip heads, and, when this damage is significant, it can require treating at lower populations. Head clipping is a behavioral change and usually occurs after leaves have been defoliated or senesce. Scouting at dusk will often find the larvae at the top of the plant.

In spite of the preference for broadleaves, anyone, including an armyworm, can make a mistake. I'd be a little nervous with an alfalfa under-seed being undamaged. A barley (or wheat) crop may have more armyworm

pressure than oats but all are hosts.

Corn

Grassy weeds are attractive to egg-laying moths. When scouting, pay close attention to field borders and within-field or areas with current or past high grass weed pressure. If not killed before moths arrive, grass cover crops, winter rye in particular, may also be attractive egg laying sites.

Examine plants for feeding damage and larvae. Larvae can often be found in the whorl, and the nighttime feeding often occurs in the whorl.

Treat whorl stage corn when 25% of plants have 2 larvae/plant or 75% of plants have one larva or more. On tassel stage corn, minimize defoliation at or above the ear leaf.

Bt hybrids

This [Handy Bt Trait Table 2017](#) from Chris DiFonzo at Michigan State University shows what Bt proteins control on various insect species. While several Bt traits control fall armyworm (FAW) only, the Viptera trait is promoted for control of true armyworm. All Bt traits can have difficulty controlling large populations of large armyworm larvae. We are typically dealing with larger, less susceptible larvae moving from weeds and field borders into corn. Secondly, insects must eat the Bt to be affected. As a result, damage could occur with very high armyworm populations on the move, even with an effective Bt protein.

Insecticides

Do not base treatment decisions solely on field-edge populations. The presence of live armyworm larvae should be confirmed before an insecticide is applied. Insecticide treatment of populations that are starting to pupate or are heavily parasitized is not recommended.

Partial field or border insecticide treatments for armyworm are often sufficient when infestations are well identified by scouting early or when armyworms populations are migrating. Treat several boom widths ahead of the infestation.

Long insecticide residuals are not needed because of the short time a larval generation is damaging. Many insecticide products are labeled and effective. Refer to the insecticide label for rates. It is important to check the pre-harvest interval of any small grain pesticide. Take precautions to protect pollinators, particularly as corn nears tassel stage.

True armyworm lookalikes in MN spring corn & cereal crops

Be aware that there can be an armyworm imposter lurking on field edges. **Grass sawfly** larvae range from tan to green. They are in the order Hymenoptera (bees and



Sawfly larva. Note three pairs of true legs and 8 pairs of abdominal rear prolegs and the single eye. Photo: Aaron Hass

wasps) rather than Lepidoptera (butterflies and moths).

A giveaway is the fleshy prolegs, which number more than five. In the Lepidoptera, the prolegs number 5 or less. Lepidoptera caterpillar prolegs have minute hooks (crochets) while those of sawflies do not.

Sawflies can clip small grain heads, but I cannot remember a Minnesota infestation heavy enough to require treating.



Some sawfly larvae are green

Wheat head armyworm

Wheat head armyworm are common insects but rarely a pest of MN cereal crops. There are a number of related species that are not easy to differentiate. The larva tends to feed on the heads of cereals.

Cutworms

Several species of cutworms may be found in corn and small grain crops. These will have five proleg pairs like armyworm. Anticipate increased populations of both migratory and overwintering species to be higher in weedy fields or cover crop fields.

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