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Yellowstriped Armyworm on Tomatoes and Peppers

The yellowstriped armyworm, *Spodoptera ornithogalli*, is an insect pest of tomato (*Solanum lycopersicum*) and pepper (*Capsicum annuum*) crops grown in hoop houses and greenhouses.

Biology and Life Cycle

Development from egg to adult takes between 30 and 90 days and is dependent on environmental conditions such as temperature. Females lay eggs in clusters of 200 to 500. An individual female is capable of laying more than 2,000 eggs during her lifespan. Larvae, or caterpillars, hatch from eggs, and there are six larval instars (stages between molting). Larger, older caterpillars are 40 to 50 mm (1.5 to 2.0 inches) long and brownish-gray to black with two distinct yellow-orange stripes extending along each side of the abdomen (Figures 1-3).

Figures 1-3. Yellowstriped armyworm caterpillar.

Two black triangle-shaped spots are located on top of each abdominal segment (Figure 4). The head is brown with black markings and contains a light-colored inverted 'V.'

The yellowstriped armyworm overwinters as a pupa in the soil, with larva creating a cell lined with silk. There are 3 to 4 generations per year. Adults emerge (eclose) from pupae in April through May. Front wings of adults are patterned gray-brown with light and dark markings and a tan to brown diagonal band near the center. The hind wings are white with a narrow brown margin (Figure 5).

Figure 4. Yellowstriped armyworm caterpillar with triangle-shaped spot on each abdominal segment.

Figure 5. Adult yellowstriped armyworm.

Damage

Caterpillars feed on tomato leaves and tunnel into the fruit of tomato and pepper (Figures 6a and 6b). Caterpillars feed for about three weeks, and fecal deposits (frass) may be present on the upperside of plant leaves (Figure 7).

Management

Scout regularly by randomly looking at plant leaves to detect early infestations. Insecticides can be used against yellowstriped armyworm caterpillars, but should be applied when the caterpillars are small (young). For instance, *Bacillus thuringiensis* subsp. *kurstaki* (*Btk*) and spinosad can be used when the caterpillars are small and before they tunnel into fruit. Both are stomach poisons, which have to be ingested by caterpillars for them to be active. Thorough coverage of both upper and lower leaf surfaces is important, and frequent applications are warranted. *Btk* is a microbial insecticide that is most effective when caterpillars are small. Large caterpillars are more difficult to manage, and they may need to consume more plant material to be negatively affected. Therefore, to prevent damage, caterpillars may have to be handpicked and placed in a container of soapy water.

Figure 6a (left) Yellowstriped armyworm tunneling into a tomato fruit.
6b. (right) Yellowstriped armyworm inside the fruit of a pepper.

Figure 7. Fecal deposits (frass) associated with caterpillar feeding on tomato leaves.

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