# Beet Armyworm in New Mexico Hay

### Revised by J. Breen Pierce[1]

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## DESCRIPTION

Beet armyworm (*Spodoptera exigua* [Hübner]) is an occasional pest of alfalfa hay in New Mexico. The adult is a grayish-brown moth with silver hind wings and two pale spots near the center of the front wings. It feeds on nectar and does not damage crops. The damaging stage is an olive green to black caterpillar that is smooth due to a lack of hairs common on many caterpillars. A characteristic small black dot can be found on each side of the second body segment behind the head (Figure 1). This will not be found on any other caterpillars that might also be found in New Mexico hay.



*Figure 1.* **Beet armyworm larvae. Note the black spot on the second body segment behind the head (left side of middle larva).**

Beet armyworm feeds on a wide variety of wild hosts, including pigweeds and lambsquarters, which are preferred host plants. It is not a key pest of alfalfa hay in New Mexico, but will at times cause significant damage. In New Mexico, it often appears with a number of other species of armyworms, particularly yellowstriped armyworm (*Spodoptera ornithogalli* [Guenée]). It is widely distributed across the United States during the summer and fall. Like a number of insect pests, it is subtropical in origin and cannot overwinter in New Mexico. Beet armyworm moths migrate north to New Mexico every spring.

## LIFE CYCLE

Eggs are laid on top of alfalfa leaves in a mass of 25 to 75 eggs covered loosely with white scales. Eggs hatch in about four days during the summer. After hatching, the small larvae feed as a group for a few days before dispersing to feed alone. Larvae feed for two to three weeks, with five to six instars (larval stage between each molt), reaching a maximum size of 1 1/4 inches in length before pupating in the soil. Moths emerge five to eight days later. Development from egg to adult takes about 30 days, depending on temperature. Four or more generations are possible in New Mexico each year.

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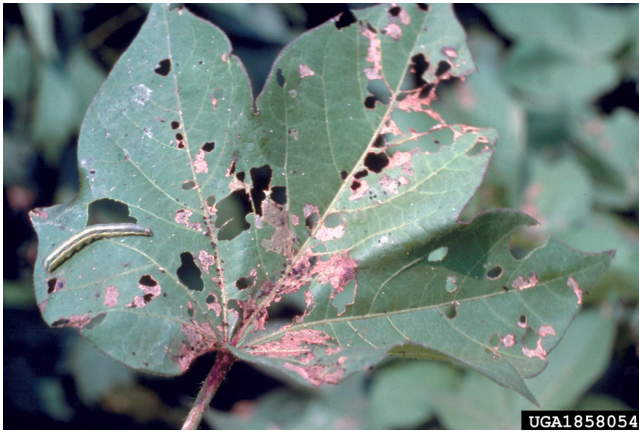
*Figure 2.* **Skeletonized cotton leaf as a result of beet armyworm feeding.** (Ronald Smith, Auburn University, Bugwood.org.)

Beet armyworm is more often a pest during dry years. It is also considered a secondary pest whose numbers resurge when heavy insecticide use has reduced populations of natural enemies.

## DAMAGE

Young larvae feed in groups close to where they hatched. They cannot feed through the leaf veins, so their feeding produces skeletonized leaves (Figure 2). Heavy feeding on the tips of plants can cause flagging as the terminal leaves turn white. Older larvae feed alone and consume the entire leaf tissue. High populations can produce significant defoliation and yield losses.

## MANAGEMENT

Beet armyworm populations are frequently well controlled by natural enemies. Some of the more common predators of beet armyworm include big-eyed bugs, minute pirate bugs, damsel bugs, green lacewings, and numerous species of spiders. The level of control by parasitoids is unknown, but adjoining states have reported significant control from parasitic wasps, tachinid flies, and a viral disease. Conservation of beneficial predators and parasitoids will help avoid problems with beet armyworm. Research has shown that alternate harvesting of strips helps conserve beneficial insect populations. When that is not feasible, growers should consider staggering cuttings in adjacent or nearby fields so that some appropriate habitat is nearby. This will allow predators to move to a field that has some leaf canopy, which can protect them from desiccation. Our experiments conducted in Artesia, NM, have indicated that cutting hay has severe impacts on beneficial insect populations, not only in the cut hay but also in nearby crops like cotton that depend on movement of predators from hay. Organic growers, in particular, should take this into consideration, but conventional growers could also benefit from keeping this in mind if nearby cotton has some insect pest populations.

## THRESHOLDS

If pest numbers reach the economic threshold, control measures may be warranted. To estimate pest populations, sweep each of four field quadrants with five sweeps per section for a total of 20 sweeps. Early cutting of alfalfa hay can be used as a control measure. If cutting early is not practical, treat with insecticides if one or more of the following thresholds are met based on 180-degree sweeps with a 15-inch net:

1. 10 alfalfa caterpillars
2. 15 armyworms
3. 10 combined alfalfa caterpillars and armyworms

Beet armyworm has historically been difficult to control, but some of the newer classes of insecticides have been very effective. However, it can still be more difficult to control than some other caterpillars. If more than one species is present, select an insecticide that will effectively target beet armyworm. Timing of application is also important. Once larvae are over 1/2 inch long they become increasingly tolerant and difficult to kill with insecticides.



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