

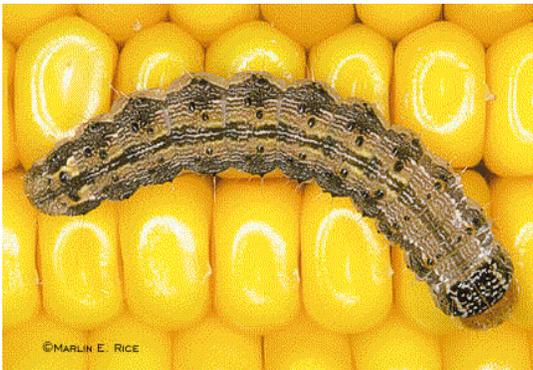
# Corn Earworm

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Adapted from a publication by G.R. Nielsen, Former Extension Entomologist

The corn earworm\* is one of the most destructive insects attacking corn, especially sweet corn. Its seasonal abundance depends upon moths flying in from warmer regions and reinfesting northern corn fields annually.



## Description

Fully grown larvae are 1 1/2 inches long and vary in color from a light green or pink to brown or nearly black and are lighter underneath. They are marked with alternating light and dark stripes running lengthwise on the body. The stripes vary between individuals. There is usually a double middorsal dark line the length of the body. The head capsule is yellow and unspotted. The legs are dark or nearly black. The moths are grey-brown to light buff with irregular darker lines and spots near the outer margins of the fore and hind wings. The moths have a wing expanse of about 1 1/2 inches.

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## Hosts

The corn earworm is a very general feeder attacking many crops and weeds. Besides corn, it is an important pest of cotton (bollworm) and tomatoes (tomato fruitworm). Other hosts are beans, alfalfa, clover, vetch, and tobacco.

## Damage

Damage to corn results when the larvae feed in the tips of the ears devouring the kernels down to the cob and fouling the ear with excrement, sometimes destroying the silks before pollination is completed. Corn earworm enters the ear through the silk channel. The larvae seldom bore through the cob or husks like the European corn borer. As the silks dry, the earworms shift to the kernels, starting the tip. The presence of the worms in ears of sweet corn is most repulsive to consumers and very troublesome to commercial canners. The corn earworm causes losses in several ways: chewed silk prevents pollination; damaged kernels are prone to several diseases; and infested ears must be trimmed before marketing, lowering value while increasing production labor costs. Losses from molds which follow the feeding of the worms, is often extensive and sometimes moldy feeds cause livestock health problems. Injury to tomatoes and bean pods is caused by the larvae boring through these plant parts. The foliage of these and other hosts is often eaten.

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## Life History

The corn earworm passes the winter in the pupal stage--2 to 6 inches below the soil surface. In the spring the moths emerge and crawl up exit holes prepared by the larvae before pupating. The moths fly mainly at dusk and feed on the nectar. They deposit their yellow-white eggs on the corn silks. Each moth lays 500 to 3,000 eggs, averaging 1,000. The hemispherical, ridged eggs are laid singly. Hatching occurs in 2-10 days and the larvae feed downward through the silks into the ear tip. They become fully grown in about 3 or 4 weeks. Molting 5 times, they then leave the ear and enter the soil and form a pupal cell. Pupation takes 10-25 days during the summer. The earworms do not always remain in the first ear which they entered but frequently go from one ear to another. They are cannibalistic and usually only one full-grown worm is found in each ear.

## Management

**Natural and Cultural:** Earworm-resistant sweet corn varieties show promise. Injury to both field and sweet corn can be reduced by growing strains with long tight husks which extend beyond the tips of the ears. Corn varieties with this type of husk are physically safer from the earworm. Clipping a clothespin on the silk channel at the early silk stage will increase the effect of husk tightness and keep the worms from damaging the ears. The adult is attracted to black light traps. Corn earworms are cannibalistic. Both *Bacillus thuringiensis* (B.t.) and nuclear polyhedrosis virus are effective against the earworm. The time of planting will have a marked effect on injury by this insect but will not always be the same in different years. When earworm damage is detected in early varieties, prevent further infestation by applying 1/2 - 3/4 of a medicine dropper of mineral oil into the silk just inside the tip of each ear. An oil can is easier to use on large plantings. Do not apply until the silk has wilted and begun to turn brown at the tip, as earlier treatment will interfere with pollination and result in poorly filled ears. The mineral oil suffocates the worms. It is tasteless and will not affect the flavor of the kernels. Earworms may be gouged out after the silk begins to turn brown and when you are sure that pollination is complete. Another easy but not so effective method is to walk through the corn patch every four days and cut the silk off close to the ear.

Natural control results from cannibalism of the larvae, the egg parasite, *Trichogramma minutum* Riley, the larval parasite, *Winthemia quadripustulata* (Fabr.), the predatory bug, *Orius insidiosus* (Say), and a number of other predaceous insects and birds.

**Chemicals:** Used widely used on sweet corn. Direct spray carbaryl (*in the evening to avoid bee poisoning*) within 2 days of full silk to the silks about 1 day after 7 to 10 percent of the ears are silking, with 2 repeat applications about 2 or 3 days apart. A compressed-air hand sprayer is satisfactory for treating garden plots of sweet corn.