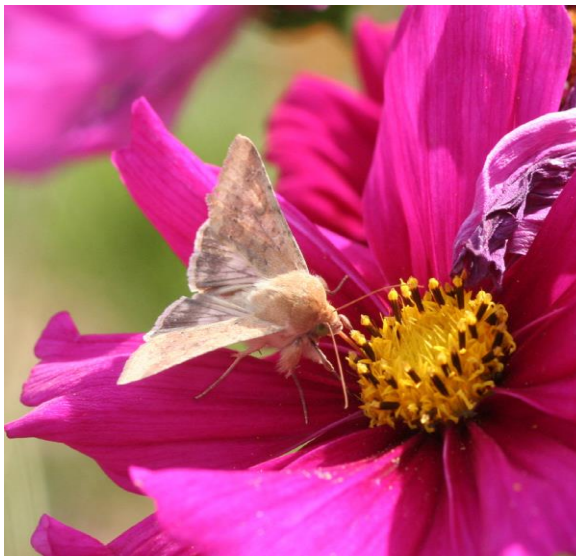
Corn Earworm

The insect that has shown the most potential to damage hemp in Colorado is the **corn earworm** (*Helicoverpa zea*). This is one of the most widespread and commonly damaging insects in much of the United States, affecting both field crops and vegetable crops. Evidence of its importance is indicated by it having three accepted common names: corn earworm (when in corn), **tomato fruitworm** (when feeding on fruits of peppers, tomatoes, etc.), and **bollworm** (when feeding on cotton bolls).

In hemp the primary damage occurs when they tunnel into buds and developing seeds. Damage to hemp by corn earworm has potential to cause significant damage, particularly to crops grown for production of large buds to extract CBD or other pharmaceutical compounds. Potential damage to fiber or seed producing cultivars is likely to be minimal. Populations of this insect vary greatly from season to season in Colorado and will usually peak in hemp during late August and/or September.

Corn earworm caterpillars in hemp. The bottom photo is by Janna Beckerman, purduehemp.org



Adult corn earworm feeding on flower nectar.

Parts of Colorado include areas of the northern range of where corn earworm has historically been able to survive through winter (as a pupa in the soil). However, mild winters will allow this insect to survive further north. Furthermore, adults of the corn earworm corn earworm are strong flying moths and disperse long distances; many of the corn earworms that occur in fields in Colorado may well have migrated many hundreds of miles.

The adult moths fly at dusk and evening, although a few are sometimes active on overcast days. Females lay eggs on leaves (or corn silks).

(Top) Corn earworm egg. Photograph courtesy of John Ruberson, Kansas State University and Bugwood.org

(Middle) Corn earworm larvae collected from sweet corn, showing range of sizes and colors.

(Bottom) Corn earworm pupa.

The eggs are laid singly which results in infestations being scattered through the crop. A female corn earworm may lay about 30 eggs each evening over the course of her lifetime, which typically lasts for about two weeks.

Eggs hatch 2-3 days after being laid and the larvae begin to feed, usually concentrating on flowers and reproductive parts of the plant. The newly hatched caterpillars are minute, only about 2mm or so in length, but they develop quickly and are full-grown (about 25mm in two to three weeks. Color of the caterpillars can be highly variable and in some crops can range from pale brown to nearly black, occur in various shades of green, or even have reddish coloration. In hemp, corn earworm caterpillars observed so far have been green.

The full-grown caterpillars will drop to the ground, enter the soil and create a small earthen cell a few inches below ground where they transform to the pupal stage. During the growing season, the adult will emerge about two weeks later and produce a new generation. Corn earworms that develop late in the season will produce a pupal stage that remains dormant until the following season.

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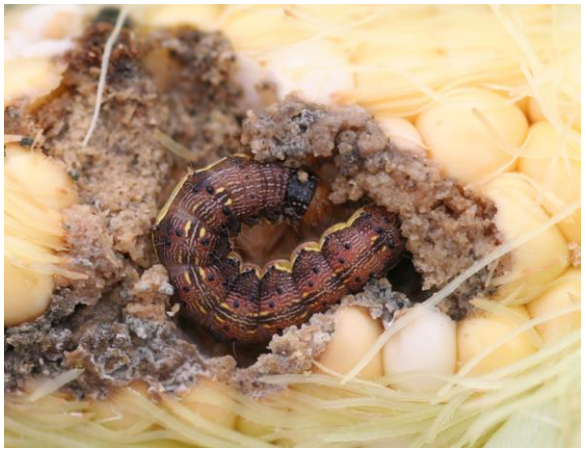
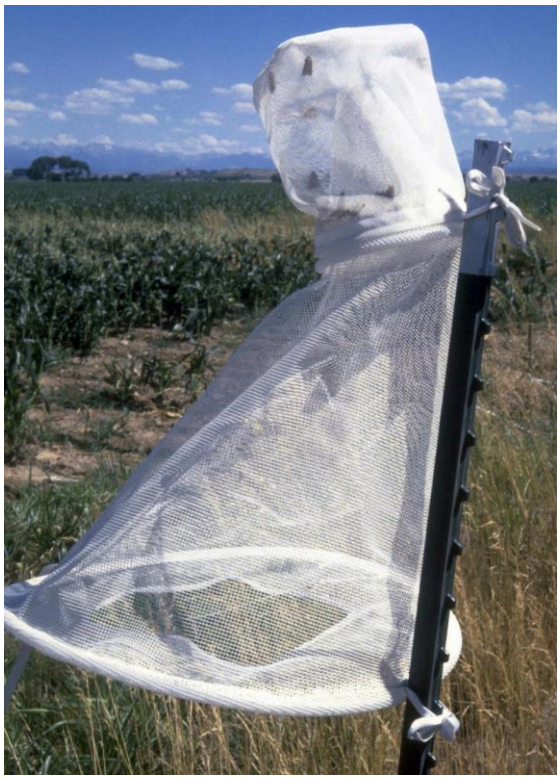
A *Proposed Management Plan for Corn Earworm in Hemp* is located elsewhere in this website.

Lepidoptera: Noctuidae



Helicoverpa zea **is known variously as the corn earworm when in corn (top) and most crops. When it occurs in tomatoes, peppers and other fruiting vegetables (middle) it is called the tomato fruitworm. When in cotton (bottom) it is called the bollworm.**

Middle photograph courtesy of David Shetlar, The Ohio State University. Lower photograph courtesy of Ronald Smith, Auburn University and Bugwood.org



A Heliothis trap used, with a pheromone lure, to capture adult males of the corn earworm. This trap can be very useful in detecting incidence of corn earworm, allowing prediction of potential problems. Photograph courtesy of Eugene Nelson, Colorado State University.