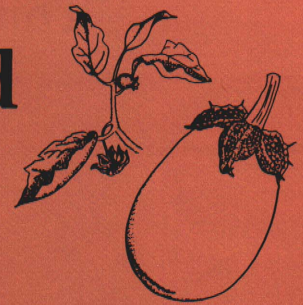




# Tomato, Eggplant and Pepper Insect Pests



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Several species of cutworms (black, glassy, variegated) can be serious pests of newly transplanted tomato, eggplant and pepper plants. The (1) black cutworm is 1 to 1½-inches long, dark brown to black in color. These "early season" (early to mid-April) cutworms overwinter at various instars (usually 5th and/or 6th instar) and are already in the field when the plants are transplanted. They hide in the soil during the daytime and damage the plants at night. Damage consists mainly of the plants being cut off at, or just below, the soil surface. The larvae do not consume the entire plant, but rather move to the next plant or another row. The result is loss of stand. Damage is usually concentrated in low, damp areas of the field and/or where grass is a weed problem. Cutworms can be extremely damaging where the transplants are planted through plastic. The increased heat under the plastic radiates out — especially around the plants — at night and attracts the larvae to the plants. Once under the plastic, the larvae are protected and are difficult to control. (2) Pupation begins around mid-May depending on the species, temperatures, etc. The (3) adult moths emerge in early-June and begin laying eggs for the next generation. Damage from the 2nd and 3rd generation larvae is generally not as serious because the plants are well established and too woody for the larvae to cut off. Larvae prefer to feed on grassy weeds. There may be 2 to 3 generations per year.

(4) Colorado potato beetles (½-inch long, yellow with black stripes) overwinter as adults in field debris, fence rows and ditch banks. They emerge in early May when, or shortly after, the young plants are being transplanted into the field. They mate and lay (5) orange eggs on the leaves. In a few days, the eggs hatch and (6) larvae begin to feed on the foliage. Damage, generally, is most severe at the growing tips of the plants but spreads as the larvae grow. Both adults and larvae defoliate the plants. There are 2 to 3 generations per year.

(7a) Green peach aphids (1/16-inch long, light-green color) are by far the most important aphid on eggplant and pepper in Michigan, while (7b) potato aphids (3/8-inch long, pinkish-red in color) are the principal problem on tomatoes. Green peach aphids overwinter as eggs on peach, plum and possibly chokecherry and other small stone fruits and potato aphids overwinter on roses. In early spring, the eggs hatch into nymphs which all develop into females. Two to three generations are usually spent on the overwintering host plant. By the first week of June, the winged forms begin to migrate to their over 250 host plants (for green peach aphids), which include tomatoes, eggplant and peppers. The succeeding generations are all females and have the capacity to give birth to 80 to 100 young (50 to 60 young for the potato aphid).

Damage is caused from sucking plant sap from the underside of lower leaves; causing the leaves to curl downward. This stunts and/or kills the plants. In addition, green peach aphids spread cucumber mosaic virus in peppers. This mosaic stunts the plants and makes the (8) pepper fruit unmarketable. There are 12 to 15 generations of green peach aphids per year and 5 to 6 generations per year for potato aphids. Only the final generation has males. They mate with females, which in turn lay the overwintering eggs.

(9 inset) Flea beetles (3/8-inch long, black, bronze or blackish with light lines on the back) overwinter as adults. They emerge in early spring and begin feeding on young tomato and eggplant plants; seldom being a problem on peppers. (9) Damage consists of many small holes in the leaves. Eggs are laid at the base of the plants. First and second generation larvae feed only on the roots. The second generation adults usually emerge in late-July to early-August. Feeding damage is similar to the earlier first generation. Eggs are again laid for the second generation larvae.

Hornworms (10a, tomato and 10b, tobacco) (3- to 4-inches long, green with white bars on sides and a short horn near tip of rear end) blend in with the foliage

and can defoliate the plants (tomato, eggplant and pepper) extremely rapidly. They overwinter as large (about 2-inches long) mahogany-brown pupae several inches deep in the soil. The adult moths begin to emerge in mid- to late-June in Michigan. The round, greenish-yellow eggs are deposited singly on the lower side of the leaves. The eggs hatch in about a week and the young larvae begin to feed ravenously on the foliage. The larvae complete their development in 4 to 5 weeks. They then leave the plant to dig down in the soil where they pupate and overwinter. There may be one generation, and a late partial second generation per year.

The tomato fruitworm (also called corn earworm) does not overwinter in Michigan. (11) The moths migrate in from the south; usually arriving in mid-August. They are attracted to the foliage of tomato (also occasionally to eggplant, but rarely pepper) for egg laying. The yellowish-colored, round-shaped eggs are deposited singly on the underside of the leaves. (12) The important damage results from the rather restless larvae shifting from one fruit to another as they feed. One larva often damages several fruits without consuming the equivalent of a single one. (13) Eggplant is occasionally attacked by larvae which tunnel inside the fruits. Equally important, the larvae contaminate the product. Tomato fruitworms are present in Michigan from mid-August until frost.

European corn borer is not a pest of tomato and eggplant in Michigan. First generation European corn borer larvae are usually gone from the field before there are any peppers on the plants. The second generation larvae, however, are extremely serious pests of peppers in Michigan. (14) Adult moths begin to emerge in late July and begin laying eggs on the undersides of the leaves. (15) Eggs hatch in about 4 days and the (16) larvae attack the peppers around the "cap". This damage reduces the quality of the peppers but equally important, the larvae inside the peppers represent contamination of the processed product. Second generation moth activity usually peaks between August 15th and 25th, but adults are actively depositing eggs until frost.

For chemical control recommendations, homeowners should consult Extension Bulletin E-760(b), "Home Vegetable Garden Insect and Disease Control." Cooperative Extension Service Programs are open to all without regard to race, color, creed, or national origin. Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8, and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Gordon E. Guyer, Director, Cooperative Extension Service, Michigan State University, E. Lansing, MI 48824. 1P-10M-2:77-JH, Price 10 cents, single copy free to Michigan residents.

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Black cutworm (1) left, above — larva; (2) left, below — pupae; (3) right — adult

(4) Colorado potato beetle, adult

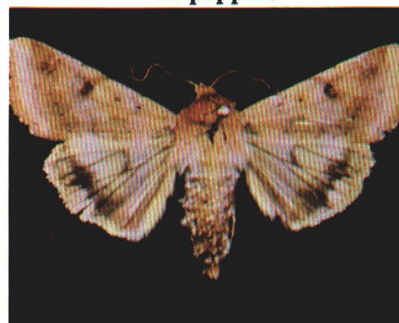
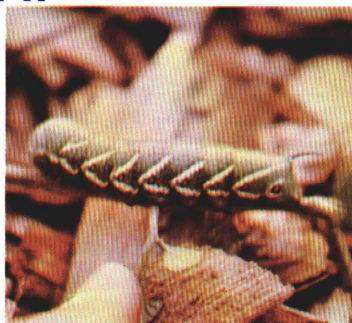
(5) Colorado potato beetle, eggs



(6) Colorado potato beetle, larva (7a) Green peach aphids on pepper leaf

(7b) Potato aphids on tomato leaf

(8) Mosaic disease in peppers

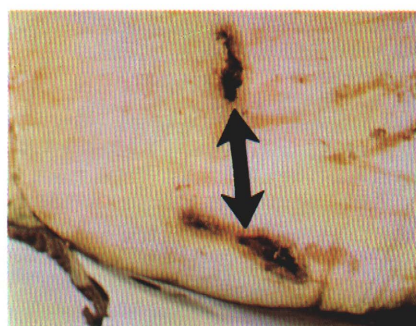
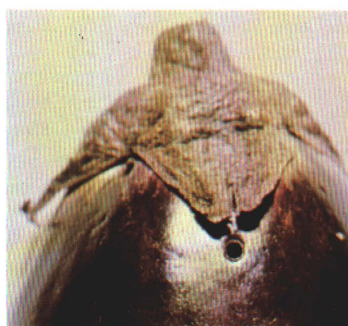


(9) Flea beetle adult (inset) and damage

(10a) Tomato hornworm

(10b) Tobacco hornworm

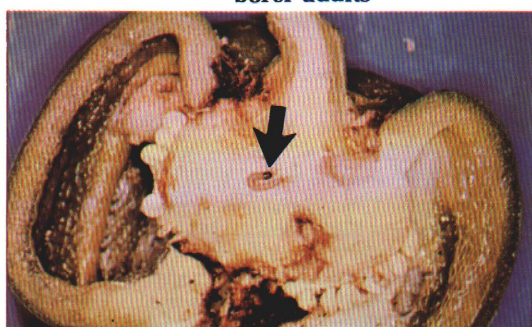
(11) Tomato fruitworm, adult



(12) Tomato fruitworm, larva

(13) Eggplant damaged by tomato fruitworm, (left) entry hole; (right) internal damage (arrow)

(14) European corn borer adults



(15) European corn borer egg mass on pepper

(16) European corn borer damage to peppers, (left) site of entry around "cap" (arrows); (right) internal damage and larva (arrow)