

TOMATO, EGGPLANT AND PEPPER INSECT PESTS

By Ed Grafius, Department of Entomology, Michigan State University



Cutworms—several species of them—can be serious pests of newly transplanted tomato, eggplant and pepper plants. The black cutworm (Fig. 1) is 1 to 1½ inches long and dark brown to black. These early season (April-May) cutworms overwinter as larvae 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, primarily by cutting the plants off at the soil surface. The larvae do not consume the entire plant but move to the next plant or another row. Damage is often concentrated in low, damp areas of the field and/or where grass is a weed problem. Cutworms can be extremely damaging where transplants are planted through plastic. At night, the heat under the plastic radiates out, especially around the plants, and may attract the larvae to the plants. Once under the plastic, the larvae are protected and difficult to control. Pupation (Fig. 2) begins around mid-May, depending on the species, temperature, etc. The adult moths (Fig. 3) emerge in June and begin laying eggs for the next generation. Damage from the second and third generation larvae is generally not serious because the plants are well established and too woody for the larvae to cut off. These later larvae prefer to feed on grassy weeds. There may be 1 to 3 generations per year, depending on the species of cutworm.

Colorado potato beetles (Fig. 4) overwinter as adults in fields, fence rows and ditch banks. They emerge in May to early June, mate and lay eggs (Fig. 5) on the leaves. In a few days, the eggs hatch and larvae (Fig. 6) begin to feed on the foliage. Both adults and larvae defoliate the plants, attacking eggplant, tomatoes, potatoes and occasionally peppers. There may be 1 to 3 generations per year, depending on location and weather. Weeds such as horsenettle, nightshades and other Solanaceae are also hosts.

Green peach aphids (Fig. 7) (1/16 inch long, light green) are by far the most important aphid on eggplant and pepper in Michigan. Potato aphids (1/18 inch long, green or pink) are the principal problem on tomatoes. Green peach aphids overwinter as eggs on peach,

plum and possibly wild cherry and other stone fruits. Potato aphids overwinter as eggs on wild roses and their relatives. 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. The more than 250 host plants for the green peach aphid include tomatoes, eggplant and peppers. The succeeding generations are all females (some winged, some wingless) and can give birth to 80 to 100 young (50 to 60 young for the potato aphid). There are 12 to 15 generations of green peach aphids per year and 5 to 6 generations of potato aphids. Only the final generation has males. They mate with females, which in turn lay the overwintering eggs.

Aphids damage plants by sucking plant sap from the underside of lower leaves, causing the leaves to curl downward. If severe, this may stunt or kill the plant. In addition, green peach aphids spread cucumber mosaic virus (Fig. 8) in peppers. This mosaic stunts the plants and makes the pepper unmarketable.

Flea beetles (Fig. 9 inset) (1/8 inch long, black or bronze) overwinter as adults. They emerge in early spring and begin feeding on young tomato plants and eggplants (they are seldom a problem on peppers). Damage consists of many small holes in the leaves (Fig. 9). Flea beetles lay eggs at the base of the plants. Larvae feed on the roots but do no significant damage. The summer adults emerge in late July to August. Feeding damage is similar to that of the first generation. Eggs are again laid for the second generation larvae.

Hornworms (Fig. 10) (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 rapidly defoliate tomato, eggplant and pepper plants. 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 and lay round, greenish-yellow eggs 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, then leave the plant and dig down in the soil, where they pupate and overwinter. There may be 1 or 2 generations per year.

Tomato fruitworm (also called corn earworm) does not overwinter in Michigan. The moths (Fig. 11) migrate from the south, usually arriving in August. They are attracted to the foliage of tomato (occasionally to eggplant but rarely to pepper) for egg laying. The yellowish, round eggs are deposited singly on the underside of the leaves. Larvae (Fig. 12) often move from one fruit to another as they feed, and one larva may damage several fruits without consuming the equivalent of a single one. The larvae occasionally attack eggplant, tunneling inside the fruit (Fig. 13) and contaminating the product.

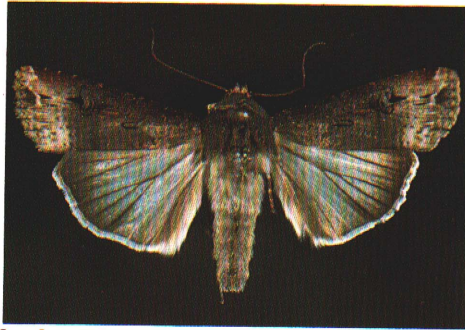
European corn borer is not a serious pest of tomato or eggplant in Michigan, but the second generation larvae are extremely serious pests of peppers. First-generation European corn borer larvae are usually gone from the field before any peppers have formed on the plants. Adult moths (Fig. 14) from the first generation larvae begin to emerge in late July and begin laying eggs on the undersides of the leaves (Fig. 15). Eggs hatch in about 4 days, and the larvae enter the peppers around the cap and feed inside them (Fig. 16). This damage reduces the quality of the peppers, and the larvae contaminate the product. Moth activity usually peaks between Aug. 15 and Aug. 25, but a partial third generation may occur, and adults may be actively depositing eggs until frost.

For chemical control recommendations, homeowners should consult Extension Bulletin E-760(b), "Home Vegetable Garden Disease, Insect and Weed Control," available from your county Cooperative Extension Office. Commercial growers should consult Extension Bulletin E-312, "Control of Insects, Diseases and Nematodes on Commercial Vegetables."

Tomato, Eggplant and Pepper Insect Pests



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



4. Colorado potato beetle



5. Colorado potato beetle eggs



6. Colorado potato beetle larva



7. Green peach aphids



8. Mosaic disease in peppers



9. Flea beetle adult (inset) and damage



10. Tomato hornworm (left); tobacco hornworm (right)



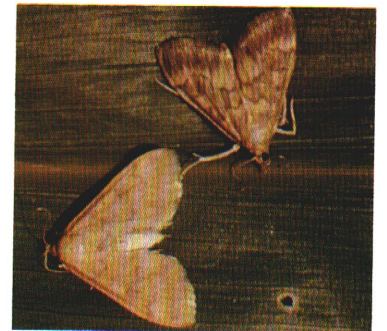
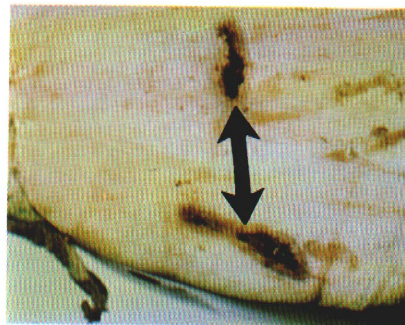
11. Tomato fruitworm adult



12. Tomato fruitworm larva



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



14. European corn borer adults



15. European corn borer egg mass on pepper leaf



16. European corn borer damage to peppers (left: sites of entry around cap; right: internal damage and larva)

