

POTATO INSECT PESTS

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White grubs (Fig. 1) (1½ inches long, brown to cream-colored) and **wireworms** (Fig. 2) (1 to 1½ inches long, brown to yellow-brown) can severely damage potatoes (Figs. 3, 4). They are most common in fields where sod and other grasses have been growing for 2 or more years. The adult beetles (June beetles are adult white grubs; click beetles are adult wireworms) are attracted to grassy areas to lay eggs. After the eggs hatch, the young grubs begin feeding on the grass roots. When potatoes are planted in such areas, the grubs attack the tubers. These larvae live in the soil for 2 or more years, so damage to the tubers will continue even though the sod is plowed down when the land is fitted for planting.

Colorado potato beetles (Fig. 5) (½ inch long, yellow with black stripes) overwinter as adults in fields, fencerows and ditch banks. They emerge in May or early June when the young plants are coming up, mate and lay eggs (Fig. 6) on leaves. In a few days, the eggs hatch, and the larvae (Fig. 7) begin to feed on the foliage. Damage is generally most severe at the growing tips of the plants, but it spreads as the larvae grow. Both adults and larvae defoliate the plants. There are 1 to 3 generations per year.

Potato leafhoppers (Fig. 8) (1/8 inch long, light green) do not overwinter in Michigan. They migrate in on storm fronts beginning in late May. There are 4 to 6 generations per year. Generation time is around 20 days. Leafhoppers will commonly move from alfalfa, when it is cut, into potatoes. The adults and nymphs attack the underside of the leaves and suck the sap. This causes the leaves to curl and turn yellow and reddish-brown (hopperburn) (Fig. 9). The plants may be stunted and yields reduced.

Potato flea beetles (1/8 inch long, black) overwinter as adults (Fig. 10 in-

set). They emerge early in the spring and begin feeding on the young plants. Damage consists of many small holes in the leaves. The adults lay eggs at the base of the plants, and the larvae feed on the roots but do not cause significant damage. The summer adults usually emerge in late July or early August. Feeding damage is similar to that of the first generation. Eggs are again laid and the larvae feed on the plant roots. Larvae in Michigan do not cause significant damage. However, related species in the western U.S. can attack and damage tubers.

Green peach aphids (Fig. 11) are by far the most important aphid on potatoes in Michigan. They overwinter as eggs on peach, plum and possibly wild cherry and other small stone fruits. 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 more than 250 host plants, which include potatoes. The succeeding generations are all females and each can give birth to 80 to 100 live young. They damage plants by sucking plant sap from the underside of lower leaves and spreading potato leafroll and other viruses. Potato leafroll virus (Fig. 12) stunts the plants, reduces yield, makes potatoes unfit as seed, and may result in net necrosis in the tubers in certain varieties of stored potatoes. There are 12 to 15 generations per year. Only the final generation has males. They mate with females, which in turn lay the overwintering eggs.

Cabbage looper adults may migrate into Michigan as early as late June but usually not until late July or August. The adults lay their eggs on the plants mainly in late evening or at night. Hosts include cabbage, broccoli, cauliflower, brussels sprouts, celery,

tomatoes, potatoes, etc. The eggs hatch in about a week and the larvae (Fig. 13) (light green with a white stripe along each side) feed on the foliage. The larvae grow rapidly and become increasingly difficult to control with age. The larvae get the name "looper" from their inchworm-like movement. There may be 2 or 3 generations per year in Michigan.

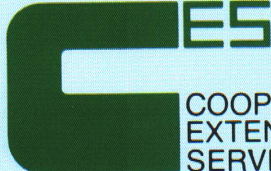
Variegated cutworms (Fig. 14) vary in color but have a buff-brownish stripe down each side and a series of yellow or orange spots along the back. The first generation of variegated cutworms in Michigan apparently occurs on clovers, weeds, etc. Summer adults are active beginning in late June or early July, when they lay eggs on potatoes and a number of other vegetable crops. Larvae feed on the foliage, primarily the lower, older leaves. **Black cutworms** and **spotted cutworms** may also occur in potatoes at this time. Black cutworms feed on the tubers, as well as on the foliage. Spotted cutworms, which feed on the foliage, look like cabbage loopers, except they lack the white side stripe and have an extra pair of abdominal prolegs.

European corn borers may also damage potato vines. However, there is currently no evidence that this damage reduces yield, even in severe damage situations.

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."

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1. White grub larva



2. Wireworm larva



3. White grub damage to potatoes



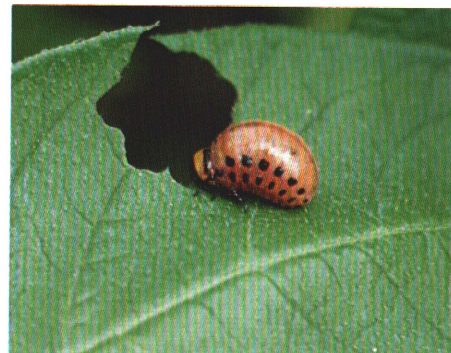
4. Wireworm damage to potatoes



5. Colorado potato beetle adult



6. Colorado potato beetle eggs



7. Colorado potato beetle larva



8. Potato leafhoppers—adult (left); immatures (right)



9. Potato leafhopper damage (note yellowish color in 2 rows)



10. Potato flea beetle (inset) and damage



11. Green peach aphids (left); nymphs and wasp parasitoid (right)



12. Potato leafroll disease



13. Cabbage looper



14. Variegated cutworm