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## SWEET POTATO AND IRISH POTATO INSECTS

### WIREWORMS

Several kinds of wireworms feed on sweet potatoes as well as Irish potatoes. The southern potato wireworm is injurious in the Southeastern States. Adults (click



**Wireworms**

Photo Source: University of California & Statewide Integrated Pest Management Project

beetles) are dark brown, about ¼ inch long and are found near the soil surface under leaves and trash in sweet potato plantings. Adults do not feed on potato plants.

Eggs are laid in the soil from late spring to early fall. They hatch in five days during midsummer, but may take several weeks during cool weather in the spring or fall.

Potatoes are injured by larvae, which are white, cream, or yellowish orange with reddish-brown heads and tails. They are smooth, shiny and relatively hard bodied. When fully grown they are ½ to ¾ inch long, and the larvae change to pupae in earthen cells in the ground. One to two generations of this wireworm occur each year.

Injury by wireworm larvae usually consists of fairly small irregularly shaped holes. If growth cracks or other breaks in the skin are present, holes may be concentrated in these, otherwise the holes are scattered at random over the surface of the root. The original holes are usually less than a quarter of an inch deep but may be considerably deepened by later growth of the root. A good indicator of wireworms is new feeding holes with ragged edges, usually containing chewed root fiber.



**Wireworm**

Wireworms usually attack potatoes late in the season. Consequently, they produce less "healed-hole" injury (early season injury that has been healed over).

The tobacco wireworm also damages potatoes. Adults are similar in size and shape to those of the southern potato wireworm, except for areas of light and dark brown. The immature stages are also very similar.

Only one generation of the tobacco wireworm occurs each year. The eggs, which are laid during the summer, hatch into larvae in one to three weeks. Pupation takes place during the late spring and summer of the following year. Most overwintered larvae have pupated before sweet potato roots begin to enlarge; therefore, injury is probably caused by larvae from eggs laid during the current year.

### CUCUMBER BEETLES

Larvae of both the banded cucumber beetle, and the spotted cucumber beetle, feed on the roots of sweet potatoes.



**Banded Cucumber Beetle**

Injury to sweet potatoes by these beetles is identical. Eggs, larvae, and pupae of the two species are also identical.

Cucumber beetle larvae eat small round holes through the skin of sweet potato roots and form irregularly-shaped enlarged cavities just under the skin. The larvae seldom tunnel into the roots, as do elongate flea beetle or striped flea beetle larvae. Feeding scars are usually in groups rather than scattered randomly over the root. Original holes are usually shallow but may be deepened by later growth of the root. In contrast to wireworms, cucumber beetles often attack sweet potatoes early in the season. This results in much healed-hole injury.

## FLEA BEETLES

Both the elongate flea beetle and the pale striped flea beetle feed on sweet potatoes. The habits and life histories of the two species are similar, and the immature stages look alike. These insects have a wide range of hosts, including many weeds. Adults move into sweet potato fields during the spring and summer and lay creamy yellow eggs in the soil. These hatch into white larvae which are soft bodied and about three-eighths of an inch long when fully grown. They have brown heads and a fleshy pointed tubercle on the tail end. The larvae mature in 20 to 30 days, then curl up in a cell made in the soil and transform into pupae. Adults emerge in about one week. At least two generations occur a year in the south.

Larvae eat small holes through the skin of sweet potatoes and make enlarged cavities and short tunnels just under the skin. Except for these tunnels, injury is very similar to that of cucumber beetle larvae, which seldom tunnel into the roots. At harvest time early season injury usually appears as shallow healed scars which tend to be long and irregularly shaped.

## SWEET POTATO FLEA BEETLE

Sweet potato leaves are often damaged by flea beetles; however, most damage occurs from larval feeding on the roots.

Adult beetles are black, about a sixteenth of an inch long, and usually hop away when disturbed. They are easily recognized by the tendency to eat narrow grooves in the upper surface of sweet potato leaves.



**Sweet Potato Flea Beetle**

Photo Source: North Carolina State University

Larvae make small winding tunnels just under the skin of sweet potato roots. These tunnels are nearly invisible at first but soon darken and can be seen through skin. As roots grow, the skin

over the tunnels splits away, leaving shallow scars on the surface. Sweet potato varieties differ widely in their susceptibility to economic injury by this insect. This injury is only cosmetic, but may impact the marketability of the potatoes.

## GRUBS

Grub injury to sweet potatoes occurs in most areas where the crop is grown. There are many species of grubs and several of them feed on



**Grub on Sweet Potato**

sweet potatoes. Grubs are the larvae of May beetles or June beetles.

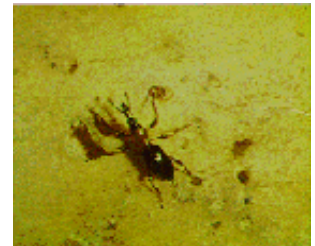
Adults of the various grubs vary in size and color but all are robust beetles.

Eggs are laid in the soil during the spring and summer and soon hatch into fleshy larvae that are typically C-shaped. They are usually white or cream with light-tan and grayish areas on the tail. Larvae pass the winter in the soil and change into pupae the following spring.

Grubs carve broad shallow areas in sweet potato roots. Since grubs feed upside down in the soil, horizontal roots are injured mostly on the underside.

## SWEET POTATO WEEVIL

The sweet potato weevil is a serious pest of sweet potatoes but occurs only in certain parts of South Carolina, mostly in the coastal counties.



**Sweet Potato Weevil**

Photo Source: North Carolina State University

Adult sweet potato weevils are ant-like beetles about  $\frac{1}{4}$  inch long. The head and wing covers are metallic dark blue and the thorax and legs are bright orange red. Adult weevils feed on the exposed part of the sweet potato plant but prefer the roots. Feeding scars on the roots consist of tiny shallow holes usually in patches.

Eggs are laid in specially prepared cavities in the vines or roots. Egg cavities are similar to the feeding punctures but may be distinguished by a mucus covering secreted by the female. Eggs hatch in about one week during warm weather. Larvae are white to ivory with light-brown heads. When fully grown in two or three weeks they are about three-eighths of an inch long. Pupae are found in the vines or roots. In a week or longer they change into adult weevils. As many as six or eight generations may be produced in one year.

Injury to sweet potatoes by weevil larvae can be recognized by tunnels that start just beneath the skin and become larger as they extend inward. Adult exit holes are about the size of a match.

## POTATO LEAFHOPPER

The potato leafhopper is considered an important pest of Irish potatoes and is known to feed on nearly 200 other kinds of plants.

Feeding by this leafhopper on potatoes causes curling, stunting, and dwarfing, accompanied by a yellowing, browning, or blighting of the foliage known as hopperburn or tipburn. The injection of saliva into the plant during feeding produces a physiological disturbance with disease-like manifestations.

The adult is pale green, somewhat wedge-shaped, about one-eighth inch long, with small white spots on the head. Adults are very active, jumping or flying when disturbed. Females deposit slender white eggs within the stems and larger veins of the leaves.



**Potato Leafhopper**  
Photo Source: University of California & Statewide Integrated Pest Management Project

Hatching occurs in six to nine days during the summer, and the pale green nymphs molt five times before they become fully grown and transform to winged adults. The period from egg to adult is about three weeks during warm weather; several overlapping generations develop each season. The potato leafhopper has not been found overwintering north of the Gulf States where it breeds throughout the year. Migration northward with the warm spring winds occurs annually.

### COLORADO POTATO BEETLE

Universally known among growers as the potato bug, this insect was long considered the most dangerous enemy of Irish potatoes and is still capable of doing much damage and can be a serious pest of tomatoes or eggplants. It is now found in most regions where potatoes are grown.



**Colorado Potato Beetle - Adult**

Adults are stout, oval, convex beetles, about three-eighths of an inch long, with 10 black and yellow stripes running lengthwise along the wing covers. Overwintering beetles hibernate in the soil, emerging in the



**Colorado Potato Beetle - Larva**

spring about the time that potatoes come through the ground. They lay orange yellow eggs in groups of a dozen or more on the undersides of the leaves. Each female deposits approximately 500 over a five week period. Eggs hatch in a few days and the dark red larvae devour the foliage, becoming orange-

colored as maturity approaches. There are two rows of conspicuous black dots on the sides of their bodies. When mature they leave the plant, enter the soil, and pupate, emerging as adults several days later. The life cycle requires about a month, and there are one to three generations per year. Injury is due to actual consumption of foliage and stems by adults and larvae.

Over the years, it has become resistant to most pesticides and is a major potato pest.

### CONTROL OF POTATO INSECTS

Adult flea beetles and leafhoppers can be controlled using a labeled insecticide. Control Colorado potato beetles with a *Bacillus thuringiensis* product, or simply by hand picking them off the plants. Insecticides are not recommended for the soil-inhabiting pests in the home garden.

Keep grass and weeds controlled, rotate where you plant root crops within the garden, and perform winter tilling to help keep soil pests in check.

Check with your local County Extension Agent for specific insecticide recommendations.

Reference:

Cuthbert, F.P. Insects Affecting Sweet Potatoes (1967). Agriculture Handbook NO. 329. ARS, USDA.

Davidson, R.H. and William F. Lyon, Insect Pests of Farm, Garden, and Orchard, 8<sup>th</sup> ed., John Wiley and Sons, New York, 1987.

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