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Potato or tomato psyllids in home gardens

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Quick Facts

The potato/tomato psyllid secretes a toxic saliva during feeding; this toxic saliva can cause severe damage to potatoes and tomatoes in Colorado.

Psyllids do not overwinter in Colorado. Outbreaks occur from flights of psyllids that migrate from southern states and Mexico.

Potatoes and tomatoes should be checked each year for developing psyllid problems. If psyllids are detected, prompt treatment of the plants with an effective insecticide is recommended.

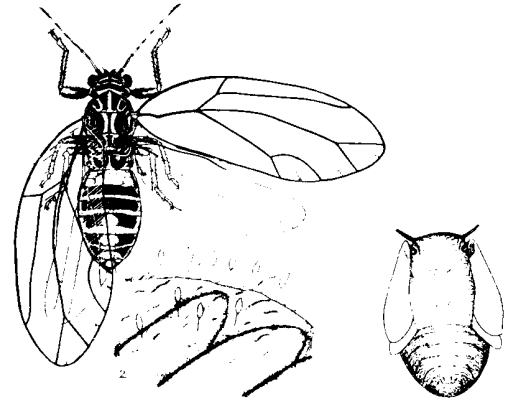


Figure 1. Tomato psyllid adult; tomato psyllid eggs on a leaf section; tomato psyllid nymph.

Life Cycle

Potato/tomato psyllids pass through three life stages in development: egg, nymph (immature stage) and adult. The adult psyllid is about the size of a typical aphid and is a member of the insect family known as "jumping plant lice." Adult psyllids are rarely found in gardens unless collected with a sweep net or knocked onto a cloth placed around the base of the plants. If seen, adult psyllids are striped with alternating dark and light bands (see Figure 1).

This information provided by:

1. Whitney S. Cranshaw, Colorado State University Cooperative Extension entomologist and associate professor, entomology; Kenneth W. Knutson, Colorado State University Cooperative Extension potato specialist and associate professor, horticulture. 1/92. ©Colorado State University Cooperative Extension. 1994. Some recommendations change regularly. Please contact your Colorado State University Cooperative Extension county office for current recommendations.

Eggs are very small, 1/32 inch in length. They are orange-yellow in color and supported by small stalks. (Note: Psyllid eggs are much smaller than the stalked, white egg produced by lacewings, which also are common in gardens). Psyllid eggs are frequently deposited along leaf margins but may occur on either leaf surface. Eggs hatch in 6 to 10 days.

Newly hatched nymphs are yellowish in color, but become progressively greener as they develop, undergoing four molts. When almost mature, nymphs are nearly the same color as leaves. Nymphs are flat, elliptical and scale-like.

Nymphs are most numerous on the undersides of leaves but can occur on shaded upper leaf surfaces. They are quite inactive and seldom can be seen to move about. While feeding, psyllid nymphs excrete small, waxy beads of material resembling granulated sugar. This material may cover leaves during heavy psyllid infestations. The nymph stage usually lasts from 14 to 22 days. Newly emerged adults remain green for a day or so on the plant before turning darker.



Figure 2: Psyllid nymphs feeding on potato leaf.

Potato/tomato psyllids do not overwinter in Colorado but survive on certain plants growing in southern Texas, New Mexico and Arizona. Problems with psyllids originate each season from winged, migrating forms of the insect. Psyllid outbreaks are very irregular in occurrence, depending on weather conditions.

Psyllids usually are found first on early potatoes or certain perennial plants such as matrimony vine. Throughout the season adult psyllids move to new plants. The number of psyllid generations produced during a year is thought to vary from four to seven. However,

there is much overlap of the generations after the original infestations become established.

Insect Injury

Adults and nymphs feed by sucking plant juices. Nymph feeding is especially serious because it brings about an abnormal condition known as "psyllid yellows." The symptoms on potato and tomato plants are quite similar. Usually the first abnormal condition is a slight yellowing along the midribs and the edges of the top leaves. The basal portions of these same leaves show a tendency to curl upward.



Figure 3: Psyllid feeding damage to potato plant.

As the condition progresses, the entire plant top changes to a yellowish-green, growth is checked and the leaves remain small and narrow and stand upright, giving the top of a plant a feathery appearance. In the case of tomato plants and certain varieties of potatoes, the leaf veins become purplish in color.

When the attack comes early in the development of the tomato plant, the dwarfing may be so severe that little or no fruit is set. Late attack on tomato plants is inclined to cause the forming of blossoms almost to the ends of the branches with an abnormal number of fruits that never attain a desirable size or quality.

In Colorado's Western Slope, symptoms of psyllid yellows is similar to another common tomato disorder produced by the curly top virus. Curly top is transmitted by insects (beet leafhopper) but involves a disease organism (plant virus) instead of toxic insect saliva.

If the attack on potato plants occurs before tuber set, a likely result is the formation of numerous tubers on each stolon. An attack after tubers are partially developed

usually results in greatly retarded growth and irregularly shaped potatoes. Potatoes from infested plants may sprout prematurely, even underground.

Psyllids also occur on other plants in the potato family, such as eggplant and pepper. Damage to these crops by psyllids has not been reported.

Control

Because these insects are so small, damage to tomatoes or potatoes by psyllids usually occurs before the problem is detected. It is very important to be able to identify potato/tomato psyllids so developing problems can be detected and treated in time. Psyllid problems do not occur every season. In some areas of the state, Cooperative Extension Pest Alerts can be consulted to provide warnings of psyllid outbreaks.

Homeowners not able to properly identify psyllids may wish to routinely treat susceptible plants. Protectant treatments may need to be applied from the time plants are six inches tall until mid-summer. Well established plants with abundant foliage usually can tolerate late season infestations with little yield loss.

Among insecticides available to homeowners, Diazinon has proven most effective for psyllid control when used at rates for other potato/tomato insects. Thorough application is required for control and repeat applications at 10 to 14 day intervals may be necessary if psyllids rapidly recolonize the plants. Preharvest interval requirements for Diazinon are 35 days on potatoes and one day on tomatoes.

Insecticidal soaps and diluted dishwashing detergents (1-2% concentration) also have been demonstrated to control psyllids. Soaps and detergents must be applied so that the psyllids are covered with the spray mixture. Some plants may be injured by soap/detergent sprays so they always should be tested first on a small area of the plant.

Some tomato varieties appear to be partially resistant to potato/tomato psyllids. Increased hairiness of the leaves is reported to make plants less favorable to psyllids.