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# The Green Peach Aphid

## (*Myzus persicae*)

The green peach aphid is important to Idaho potato growers because it transmits potato leaf roll virus from diseased to healthy potato plants. The source of the virus may be seed stock or volunteer potato plants. Relatively few aphids may lead to serious leaf roll problems if virus source plants are abundant. Therefore, to determine need for aphid control you should know the incidence of virus in or near the potato crop and have an accurate estimate of aphid numbers. Understanding the life cycle and behavior of the green peach aphid is important to effective management.

### Appearance

Adults are present in two forms — with wings and without wings.

Wingless aphids are light yellowish green or sometimes pinkish in color, teardrop shaped and about 2 mm (1/12 of an inch) long. Small tubercles located at the base of the antennae are used to separate wingless green peach aphids from most other similar appearing aphids found in potato fields.

Winged aphids are bright green with a dark head and thorax. Irregular spots on the upper abdomen are characteristic, but not unique. Tubercles such as those found on the wingless forms are used to separate winged green peach aphids from other winged aphids. However, final positive identification must be made under a microscope by someone trained to identify aphids.

### Life History

In Idaho, green peach aphids overwinter in the egg stage on the buds of peach and to a lesser degree on apricot trees. In the spring, about blossom time, the eggs hatch into a wingless form called stem mothers. Stem mothers are female and give birth to living young. These offspring again are wingless females who also give birth to live young. After several generations, winged forms appear which are called spring migrants. These soon leave the overwintering



A GREEN PEACH APHID COLONY

host tree to search for suitable summer hosts. Many plants can serve as a summer host including potatoes.

Spring migrants are female also. As they stop to feed, they give birth to live young, thereby starting colonies of aphids. Normally, spring migrants tend to deposit no more than 1 or 2 nymphs on each of a series of plants. The aphids that develop on summer hosts usually are wingless. Green peach aphids normally deposit from 2 to 5 nymphs a day. They prefer the lower leaves of potato plants.

Occasionally, winged aphids develop which migrate to other summer hosts. These winged forms are called summer migrants. Summer migrants do not always stay on the first summer host they stop to feed on, but move on feeding on several. At each plant they will deposit live young which mature into wingless females.

In the fall, a high percentage of aphid on the summer host develop into winged forms called fall migrants. Fall migrants do not colonize summer hosts, but search out peach and apricot trees. Males appear at this time and mating takes place. Fertile females deposit eggs on the buds and the life cycle is complete.

3  
322



Green peach aphids can also overwinter as active colonies under suitable conditions, such as those found in greenhouses. Thus, bedding plants grown in greenhouses and sold to home gardeners are an additional major source of aphid infestations in southern Idaho. In the certified seed potato-producing areas of Idaho, where overwintering hosts are not common, bedding plants can be the primary means by which green peach aphids enter an area.

## Damage

Green peach aphids damage potato crops in two ways. First, they can reach sufficient numbers in potato fields to damage the plants physically by removing sap to the point of reducing yield. This damage is not common.

Most important, green peach aphids are the primary vector of leaf roll virus which causes net necrosis in potatoes. If a migrant aphid feeds on a potato plant that contains potato leaf roll virus, then the aphid will pick up the virus and transmit it to all other potato plants it feeds on. Also, all offspring from the aphid will have the virus because they developed on a host plant that was infected with the virus.

## Guidelines for Control

The following guidelines on aphid numbers in relation to control measures are based on a study in 100 south Idaho potato fields over a 4-year period:

1. In the southwestern region — Apply control measures if you find more than 40 green peach aphids per 50 leaf samples in 2 consecutive weeks anytime before August 1.

2. In the central and eastern regions — Apply control measures if you find more than 10 green peach aphids per 50 leaf samples in 2 consecutive weeks anytime before August 1.

Aphid numbers given in these guidelines are well below levels that would normally cause economic loss, but exceptions could occur because aphid movements and relationships of aphids to virus transmission cannot always be predicted. These guidelines are applicable under the following conditions only:

1. When leaf roll virus content of the seed stock is within the tolerance limits established for certified seed potatoes in Idaho. Someone familiar with leaf-roll virus symptoms should make readings in the field even though certified seed is planted because volunteer plants may occur in some fields and, rarely, certified seed may exceed tolerance levels for the virus.

2. When no significant numbers of volunteer potato plants are in the vicinity of the field.

3. When no adjacent potato fields have excess leaf roll virus.

4. When the field is not in the immediate vicinity of peach orchards or unsprayed home garden peach trees.

Use the following procedure in taking leaf samples:

1. Start at a corner of the field and collect compound leaves while moving to the center in small fields and at least 300 to 400 feet toward the center in large fields.

2. Alternately collect leaves from the top, middle and bottom portions of plants until you have collected a total of 50 leaves. You should collect several leaves before making an examination.

3. Count wingless aphids on the underside of leaves and keep a record of the total for the 50 leaves.

Research has shown that most spread of leaf roll virus comes from within the field. Therefore, seed must be as free of leaf roll virus as possible. Certified seed is the best source meeting this criteria.

Soil-applied systemic insecticide treatments will protect potatoes from aphid colonization until about midseason or later in western and central Idaho depending upon weather conditions and the insecticide used. These treatments may provide season-long control in eastern Idaho. To be killed, aphids must feed on the treated plant. They can transmit leaf roll virus to some plants before dying.

If aphid populations develop in a potato field, they can be controlled with foliar applications of one of several insecticides registered for that purpose.

Trap pan surveys to monitor green peach aphids are currently conducted in most of Idaho's potato growing areas. Counts from trap pans serve only as an index of area-wide aphid density and activity. Control decisions for individual fields should be based on leaf counts made in the field. Remember, green peach aphids will be higher near the margins of potato fields than near the centers.

In the seed-producing areas, control of green peach aphids aids in maintaining a low level of potato leaf roll virus. However, cultural practices such as seed selection and field roguing are essential.

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## About the Authors

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