

white apple leafhopper

Typhlocyba pomaria McAtree



INTRODUCTION

The white apple leafhopper (WALH) is native to and widely distributed throughout the apple growing regions of North America. The WALH has 2 generations a year and overwinters in the egg stage.

A number of other leafhoppers can be found on apple but none tend to be as serious a pest as the WALH. The potato leafhopper, which migrates into the northern apple growing regions as adults in the spring, is perhaps the most common of the other species that can be found on apple. The two species can be differentiated by the way they walk when disturbed. The WALH walks to the front or backwards while the potato leafhopper walks sideways or "crab like."

THE ADULTS

The first WALH adults (Fig. 1) begin appearing in early June. They are a pale yellowish-white color and measure about 3 mm long. Under close observation, particularly on the males, a slight orange tinge may be seen on the head and thorax.

Female WALH have about a 10-day preoviposition period and then produce eggs for about 3 weeks. They may live about a week after oviposition ceases.

Second brood WALH adults begin emerging about mid August and by early September most have emerged. They normally remain active until killed by the first good frost in the fall. When present in large numbers at harvest, second brood WALH adults can be a nuisance problem to pickers.

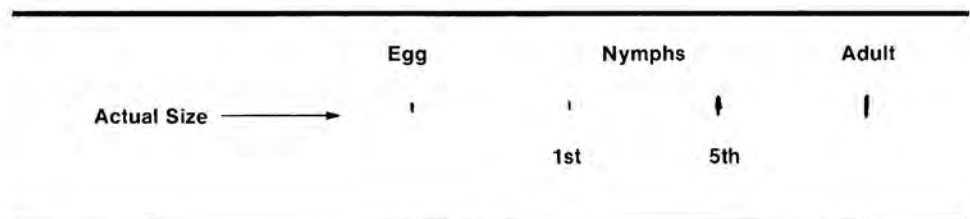
THE EGGS

The overwintering WALH eggs (Fig. 2) are deposited by the second brood females just beneath the bark surface on 1- to 5- year old wood. These egg laying sites appear as elongate, oval, blister-like swellings, measuring about 1.5 mm long, and characteristically run perpendicular to the terminal growth. Overwintered eggs begin hatching about late pink and hatch is completed by petal fall.

The second brood eggs are laid in the petiole, mid-vein and large veins of leaves from late June through mid July. These eggs begin hatching in late July and in some years emergence may continue into September.

THE NYMPHS

Newly hatched WALH nymphs (Fig. 3) are about 1 mm long, pale white and wingless. The eyes of newly hatched nymphs are red and change to a pale white color with the first molt. They migrate to the undersurface of older leaves where they begin feeding. WALH nymphs pass through 5 instars and will characteristically com-



plete their development on a single leaf or cluster of leaves. Their white cast skins frequently remain hanging from the leaf undersurface. As the nymphs reach the third instar the wing pads become noticeable. Fifth instar WALH nymphs measure about 2.8 mm long (Fig. 4).

INJURY

WALH nymphs and adults are mesophyl feeders. Feeding injury causes a white mottling of the leaves and with heavy infestations the leaves can become nearly completely white (Fig. 5).

Feeding WALH also excrete a honeydew which may drop onto lower leaves and fruit. Once dried on the fruit the honeydew appears as "tobacco juice" colored spots or

streaks that are difficult to remove (Fig. 6). Under humid conditions, the honeydew remains moist and is an excellent media for sooty molds.

CONTROL

Several parasites, predators, and a fungus attack the WALH. Normally, natural enemies cannot adequately control the WALH in commercial orchards and growers must rely on insecticidal control.

The WALH has developed resistance to the organophosphate insecticides in many apple growing regions. Therefore, consult your local recommendations for the best materials to use in your area.

GUIDE TO STAGES

STAGE	TIMING	WHERE TO LOOK
Adults	Early June to mid-July. Mid-August to first good frost.	Undersurface of leaves. same as above
Eggs (overwintering)	Late August to petal fall.	Beneath the bark surface of 1- to 5-year old wood.
(summer)	Late June to end of August.	In the petiole, and large veins of leaves.
Nymphs	Late pink to mid-July. Late July through late September.	Undersurface of leaves. same as above