

## Grasshoppers

Leafhoppers feed on many different fruit, vegetable, flower, and woody ornamental hosts. Most species of leafhoppers feed on only one or several closely related plant species. Adults mostly are slender, wedge-shaped, and less than or about equal to 1/4-inch long. Leafhoppers generally are varying shades of green, yellow, or brown, and often mottled. Some species are brightly colored, while others blend with their host plant. Leafhoppers are active insects; they crawl rapidly sideways or readily jump when disturbed. Adults and nymphs and their pale cast skins are usually found on the underside of leaves.

Leafhoppers go through incomplete metamorphosis in their development. Female leafhoppers insert tiny eggs in tender plant tissue, causing pimplelike injuries. Overwintered eggs begin to hatch in mid-April. Wingless nymphs emerge and molt four or five times before maturing in about 2 to 7 weeks. Nymphs resemble adults except that they lack wings; later-stage nymphs have small wing pads.

Leafhopper feeding causes leaves to appear stippled, pale, or brown, and shoots may curl and die. Some species cause a diamond-shape yellowing from the leaf tip. A few species secrete honeydew on which foliage-blackening sooty mold grows. Black spots of excrement and cast skins may be present on leaves and/or fruit. Some leafhopper species transmit plant diseases, but this is troublesome mostly among herbaceous crop plants.

Because of their mobility, leafhoppers are difficult to control. Fortunately, control is rarely needed. General predators may have some impact. In grapes, rely on specific natural enemies. Remove alternate hosts to reduce populations that could otherwise later migrate into the crop. Insecticidal soap or narrow-range oil can be applied to infested foliage to reduce high populations of leafhopper nymphs but will not reduce virus transmission significantly; thorough coverage of leaf undersides is important. It is very difficult to control adults effectively and no control is recommended.