Grape Insect IPM
Insect Identification Sheet No. 6
1985

grape flea beetle

Altica chalybea (Illiger)

INTRODUCTION

The grape flea beetle, also known as the steely beetle, is a native insect and occurs in about all states east of the Rocky Mountains and in Canada. It has been found in all grape-growing areas of New York State. At the turn of the century it reportedly was the most serious grape insect pest in the Lake Erie district.

This insect primarily attacks buds of wild and cultivated grapevines and Virginia creeper *(Parthenocissus quinquefolia).* A number of other plants have been listed as food plants but all are doubtful hosts.

The grape flea beetle is one of the first insect pests to appear in vineyards in the spring. There is only one generation per year. Overwintering adults become active and migrate to the grapevines at about the time grape buds begin to swell. Usually infestations are localized. However, in plantings located near favorable hibernating quarters such as wasteland, woodland, and abandoned vineyards, feeding can be severe, especially in border rows.

THE ADULTS

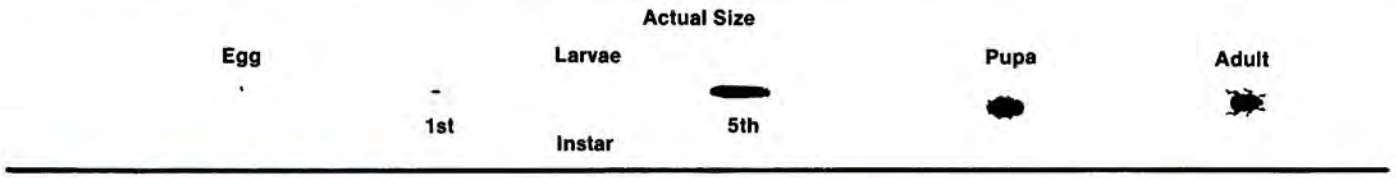
The grape flea beetle overwinters as an adult. Its body is somewhat oval in shape, is a metallic shining blue, and measures from 4 to 5 mm in length (Figs. 1 & 7). The antennae are thread-like and about half as long as the body. The thighs of the hind legs are enlarged, enabling the adult to jump quickly when disturbed. The grape flea beetle derives its name from its ability to jump.

THE EGGS

The eggs vary from yellow to orange in color. They are cylindrical in shape, rounded on the ends, and average about 1 mm in length and .4 mm in width (Fig. 2). Some eggs are placed on the hardened scales surrounding the buds, but most are laid under the loose bark of the canes and near the buds. As foliage develops some eggs are laid on the upper side of the leaves but none are deposited on the underside.

THE LARVAE

Newly hatched larvae are dark brown but as they grow their color lightens. By the time the larvae reach maturity they are light brown and from 7 to 9 mm in length (Fig. 3). The larval body is covered with black circular and rectangular plates of various sizes which give the larvae a spotted appearance. These plates



become more prominent as the larva matures and its body becomes lighter in color.

THE PUPAE

The grape flea beetle passes through this stage of development in a cell prepared in the soil by the larva at a depth of 12 to 65 mm. The pupae are bright yellow, from 4 to 6 mm long, and with conspicuous reddish brown eyes (Fig. 4). Wings and legs are an off-white color.

INJURY

Overwintering adults attack the swelling buds by boring into them and hollowing out the inside (Figs. 1 & 5). In contrast, the larvae and summer adults feed on the tender leaf tissues but avoid the leaf veins (Figs. 3, 6, & 7). Feeding on the primary buds is by far the more serious damage by this insect, causing yield loss and stunted growth from secondary or tertiary buds. No fruit develops on canes where the primary and secondary buds were destroyed, as shown in Fig. 8. The various climbing cutworms which can occur in vineyards can do very similar damage to primary buds in the spring. The amount of injury varies from year to year. It is more serious in years when bud development is prolonged by unfavorable climatic conditions. Under favorable growing conditions the bud passes rapidly through the stage when it is susceptible to attack. As the small shoots appear the adults and young larvae feed on the expanding leaves.

CONTROL

A number of approaches may be taken to combat the grape flea beetle. Wherever possible it is advisable to clean up wasteland and woodland located near cultivated vineyards. This eliminates or reduces hibernating sites. Frequent discing to control weeds between grape rows can also break the pupal cells in the soil. This exposes the delicate pupa and it dries up. However, some adults can still emerge from the undisturbed band of soil beneath the trellis which was not touched by the discing operation. To prevent bud feeding, treatment with a broad-spectrum insecticide is effective against adults migrating to grapevines from their hibernation sites, but timing is very critical.

At the time larvae and beetles are feeding on the upper surface of grape leaves, they are easily controlled by spraying. The insecticide treatments applied postbloom against the grape berry moth will also help reduce grape flea beetle populations.

GUIDE TO STAGES

Stage	Timing	Where to look
Adults		
(overwintering)	Late April, May, and through June. Chickweed [*Stellaria media* (L.) Cyr.] begins to bloom.	Migrating to grapevines as buds begin to swell.
(summer)	Latter part of July and early August.	Feeding on upper side of grape leaves and seeking hibernating quarters in dry leaves and dead plant material, wood, and wastelands with onset of cooler days in the fall.
Eggs	Late April, May, and extending to about mid-June.	About buds and under loose bark on canes.
Larvae	June to late July; from hatch to full grown larva about 3 weeks.	Upper surface of grape leaves.
Pupae	Late June to late July and sometimes into early August.	In soil in an earthen cell, beneath vines.

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