

Control of
Leafhoppers
on Cane Fruits
in British Columbia



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SUMMARY

Three leafhoppers injure cane fruits in British Columbia: the bramble leafhopper, the rose leafhopper, and *Macropsis fuscula*. DDT applied during May controls the bramble and rose leafhoppers for the whole season, but is ineffective against *M. fuscula*. Where *M. fuscula* is a problem, add malathion to the DDT.

WARNING

- Recommendations on the use of pesticides are subject to change.
- BEFORE USING ANY PESTICIDES mentioned in this bulletin check with your agricultural representative or provincial authority to make sure your proposed use is still recommended.
- This warning applies to ALL pesticides which include insecticides, herbicides, fungicides, nematocides, etc.
- Commercial pesticide products are marketed in a wide range of container sizes and formulations. They are available at garden centers, hardware stores, pet shops, etc. ALWAYS read labels and follow instructions carefully.

COVER ILLUSTRATIONS

Upper, nymphs of the bramble and rose leafhoppers feeding on the underside of a loganberry leaf.

Lower, nymphs of *Macropsis fuscula* feeding on the flower buds of loganberry.

CONTROL OF LEAFHOPPERS ON CANE FRUITS IN BRITISH COLUMBIA

J. Raine¹ and N.V. Tonks²

Three leafhoppers injure cane fruits in British Columbia: the bramble leafhopper³, the rose leafhopper⁴, and a third species known only by its scientific name, *Macropsis fuscula* (Zett.).

The rose leafhopper is found wherever cane fruits are grown in Canada. The bramble leafhopper and *M. fuscula* are found only on Vancouver Island and in the lower Fraser Valley of British Columbia. In Europe, *M. fuscula* carries a serious virus disease of loganberry and raspberry called rubus stunt. Fortunately the disease does not yet occur in Canada, but you should watch for plants that are badly stunted and report them to your district horticulturist.

All three leafhoppers feed on raspberry, loganberry, blackberry, and thimbleberry. They are usually most abundant during hot dry seasons.

DESCRIPTIONS AND LIFE HISTORIES

Bramble and Rose Leafhoppers

The bramble and rose leafhoppers have two broods each year. Both nymphs and adults are found on the undersides of the leaves. They overwinter as eggs laid just beneath the bark of the canes.

In mid-May, small wingless nymphs hatch from the eggs and crawl up to the leaves to feed. The nymphs look like small white specks (cover, upper) that scurry in all directions when disturbed. The nymphs molt, or shed their skins, several times during the summer and leave the flimsy, white skins on the undersides of the leaves.

In June the nymphs change into adults, which are whitish or pale green, about an eighth of an inch long, and have wings (Figures 1 and 2). The adults lay eggs in the fruiting stems.

Nymphs of the second brood appear in August and change to adults in September. These adults lay eggs in the canes to complete the cycle.

M. fuscula

M. fuscula has only one brood each year. It overwinters as an egg in the bark of the canes.

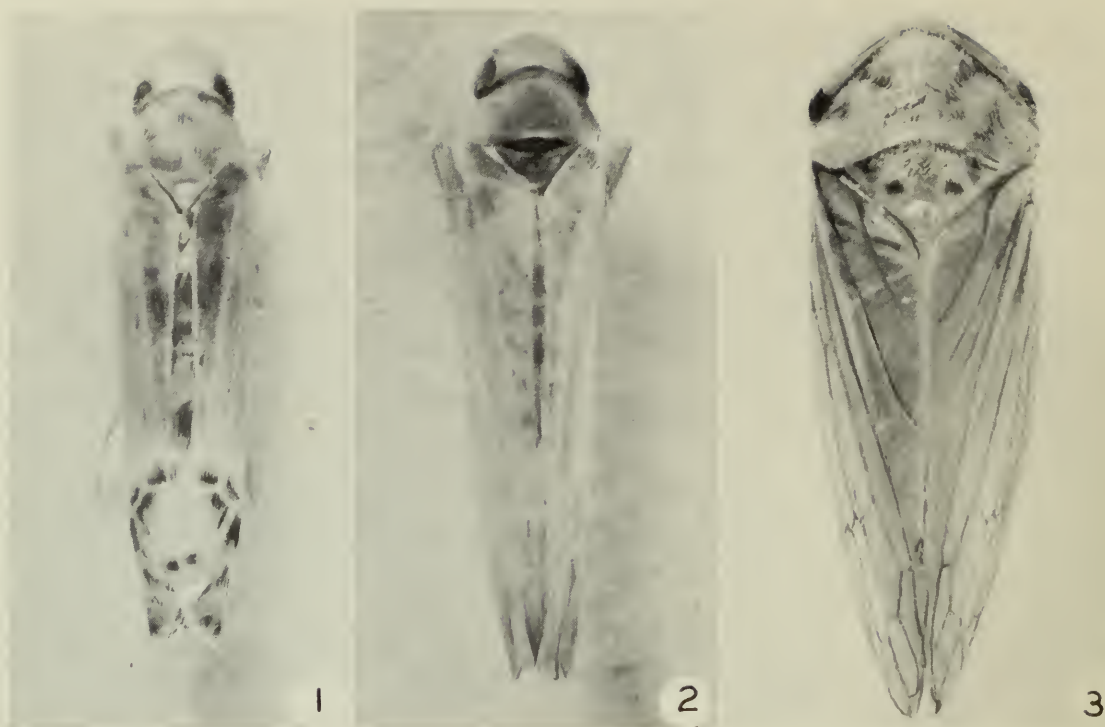
The nymphs hatch from the eggs from late May to late June. They are small and are hard to see because their color blends with that of the plant (cover, lower). They are usually pale yellow or green, and have hairy bodies. They are found mostly on the calyxes, or stem ends, of flower buds and fruit.

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³*Ribautiana tenerrima* (H.-S.).

⁴*Edwardsiana rosae* (L.).



Figures 1-3.—Adult leafhoppers. 1, The rose leafhopper. 2, The bramble leafhopper. 3, *Macropsis fuscula*.

The adults appear during July and are most abundant during August and September. They are about three sixteenths of an inch long, grayish yellow or brown, and wedge-shaped (Figure 3). They feed mostly on the new cane growth, where they also lay their eggs.

INJURY

Both nymphs and adults of leafhoppers suck the sap from plants.

The bramble and rose leafhoppers suck the sap from the leaves. As a result, the leaves become speckled with small white dots (Figure 4), and if many leafhoppers are present the whole leaf becomes mottled or whitish. In a hot dry season the leaves may appear withered. This reduces the vigor and yield of the plants and the fruit fails to size properly.

The nymphs of *M. fuscula* feed mostly on the flower buds and fruit. Yields are seriously reduced when many nymphs are present. In addition, these leaf-



Figure 4.—Blackberry leaf speckled by nymphs of the bramble and rose leafhoppers feeding on the underside.

and rose leafhoppers. A single spray in the last two weeks of May, or when the blossom buds are beginning to separate, gives protection for the whole season. Use 25 per cent emulsible concentrate of DDT at 3 pints per 100 gallons of water (3 teaspoons per gallon), or 50 per cent wettable powder at 2 pounds per 100 gallons (2 tablespoons per gallon), or 5 per cent dust. Apply the spray at 100 to 150 gallons per acre, and the dust at 25 to 35 pounds per acre.

DDT also controls the raspberry fruitworm, which feeds inside the berry, and the raspberry sawfly, which feeds on the leaves. A fungicide for the control of septoria leaf spot may be mixed with the spray and applied at the same time.

DDT, however, does not control *M. fuscus*. Where this leafhopper is a problem, add malathion to the DDT. Add either 50 per cent emulsible concentrate of malathion at 2 pints per 100 gallons of water (2 teaspoons per gallon), or 80 per cent concentrate at 1 pint per 100 gallons (1 teaspoon per gallon); or use 5 per cent dust.

Malathion alone kills all three leafhoppers, but a second spray of it is sometimes required for first-brood nymphs of the bramble and rose leafhoppers before harvest, and another for the second brood in August.

Spray equipment.—Use either hand or power equipment but use enough pressure to cover the bushes thoroughly, especially the undersides of the leaves. Operate power equipment at not less than 100 pounds' pressure. If you use a wettable powder, agitate the spray mixture well to prevent the material from settling in the tank.

Cautions.—Follow closely all the cautions listed on the insecticide label.

hoppers produce quantities of sugary honeydew on the leaves and fruit. A sooty-mold fungus grows in this material and impairs the quality of the fruit. Often nymphs are picked with the fruit and they may affect the salability of the crop.

CONTROL

Use farming practices that promote strong plants. Vigorous plants withstand leafhopper attack better than weak ones. Remove and burn old canes in October after the overwintering eggs have been laid.

DDT is the best and cheapest insecticide for controlling the bramble

INQUIRIES

For more information, consult your agricultural representative or provincial entomologist, or write to the nearest insect laboratory of the Canada Department of Agriculture or to the Scientific Information Section, Canada Department of Agriculture, Central Experimental Farm, Ottawa.



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