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THE BIRCH LEAF MINER

CANADA DEPARTMENT OF AGRICULTURE PUBLICATION 1367 1968

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The birch leaf miner (*Fenusa pusilla* (Lepeletier)), an introduced wasplike sawfly, was first discovered on this continent in Connecticut, U.S.A., in 1923. Since then, it has spread across the United States and has invaded Eastern Canada. It attacks the white birch or paper birch (*Betula papyrifera* Marsh.), the European white birch or weeping birch (*Betula pendula* Roth), and the wire birch or gray birch (*Betula populifolia* Marsh.). It does not appear to attack the yellow birch (*Betula alleghaniensis* Britt.). Infested trees show brown spots on the leaves (see cover) and look as if they had been blighted by a disease.

DESCRIPTION

There are two or more generations of the birch leaf miner a year, depending on the length of the growing season. The adult, a small black sawfly about 1/16 to 1/8 inch long, emerges from the soil during the latter part of May. The time is influenced by the weather. In Ottawa, the time of emergence is usually between May 21 and 24. The adult has a very short life. It can only be seen during the egg-laying period, and even at that, it is not easy to see because of its small size. The female lays its eggs singly inside the tissue of a newly developed leaf. The tiny larva hatches in about 7 to 10 days, and starts feeding on the tissue, between the upper and lower surfaces of the leaves. Blotches or blisters form on the leaf and become larger as the larva feeds.

The larva attains maturity in about two weeks. It is about 1/4 inch long, rather flat, and whitish in color. It can be seen inside the leaf by holding the leaf to the light. At this point in the life cycle, the larva chews its way out of the leaf and drops to the ground. It works its way into the soil, enters the pupal stage and later emerges as an adult sawfly. A generation is completed in about five or six weeks.

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DAMAGE

Since the insect prefers the young tender leaves, the first generation, which appears at the beginning of the season, does the most damage. The other generations usually attack the younger leaves at the top of the tree, or at the ends of the branches. The area of the leaves where the larvae have eaten the inner tissue becomes brown and translucent. When more than one larva feeds on one leaf, the whole leaf may turn brown. If the infestation is severe, the whole tree may turn brown.

The most serious damage is due to loss of foliage. A healthy tree can lose most of its foliage without being seriously affected, but when this loss occurs year after year, the tree is weakened and fails to develop properly. A weak tree is



The illustration, which shows the damage done by the birch leaf miner, was kindly supplied by the Department of Forestry and Rural Development.

susceptible to attacks by other insects, and also to diseases. If it is growing very close to healthy trees of other species, the birch tree that is infested by leaf miners year after year will certainly be at a disadvantage.

CONTROL

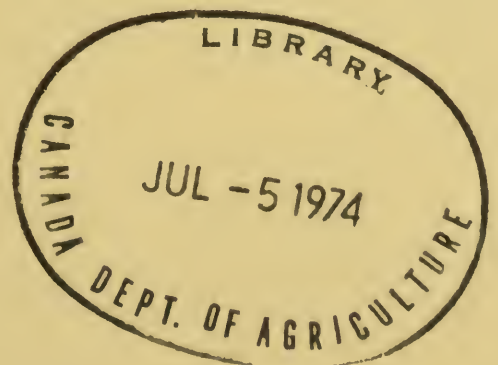
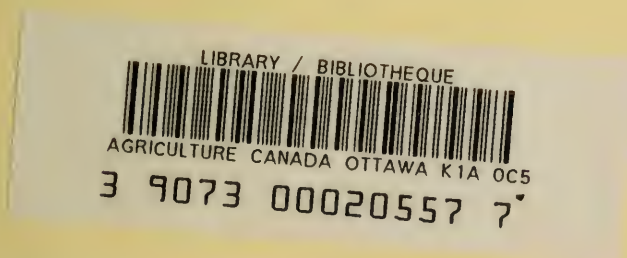
As the larva is entirely enclosed between the upper and lower surfaces of the leaf, it cannot be killed by ordinary contact and stomach poisons because they do not penetrate the leaf surfaces. Spraying with such insecticides has to be timed with the laying of the eggs, and this is not always easy.

The easiest and most effective means of control is through the use of systemic insecticides. One of them, dimethoate, in liquid form, can be used as a foliage spray. Or it can be "painted" on a smooth area of the bark around the trunk of the tree below the branches, in a band 6 to 8 inches wide. Thus applied, this systemic insecticide penetrates through the bark, and is spread throughout the tree by the sap. Another systemic insecticide, disulfoton, in granular form, can be applied on top of the ground, over the root area. The insecticide is dissolved by rainwater, absorbed by the roots, and distributed to all parts of the tree.

When it is possible to determine the approximate time of emergence of the adult sawfly, spraying the foliage with malathion or lindane at that time can be quite effective. Lindane and malathion, sprayed on the ground under infested ornamental birches in late June and early July, can also provide some control of the second generation.

CAUTION

When using an insecticide, or any pesticide, be sure to read the recommendations of the manufacturer and to follow them carefully. Insecticides must never be placed within the reach of children, or in places where the containers may be mistaken for containers of other materials.



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