

THE CONTROL OF THE HOLLY LEAF MINER *PHYTOMYZA ILICIS* CURTIS BY MEANS OF DDT (Diptera: Phytomyzidae)

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After more than twenty years, during which many attempts were made to control the holly leaf miner (*Phytomyza ilicis* Curtis), usually with indifferent success, the problem now appears to be nearer solution than ever before through the use of DDT. Initial trials on a few trees in 1945 were encouraging and indicated that, provided proper timing was observed, a far greater measure of success was possible with this material than with any insecticide hitherto tried.

In 1946 plans were made at the Dominion Entomological Laboratory, Victoria, for large scale spray trials. A plantation containing 182 trees from ten to twelve feet high was secured for this purpose. Only one preparation of DDT was tried, a powder containing 20 per cent DDT ground in pyrophyllite. This was used at the rate of 10 lbs. to 100 gallons of water to make a spray containing 2 lbs. of actual DDT per 100 gallons. A block of 70 trees was sprayed with this strength and a block of 56 trees with 1 lb. of actual DDT per 100 gallons. Another block of 56 trees was left unsprayed as a check. Orvus, at the rate of 110 grams per 100 gallons was used as a spreader. This amount was found excessive and caused considerable frothing which slowed down the pump and caused too much run off. Spraying was carried out on May 11th. At this date the flower buds on the majority of the trees were just beginning to open but three were a few trees of earlier blooming varieties which were in full bloom. Only one application was made.

The results from these trials were taken on February 26th, 1947. The mined leaves are scarcely noticeable until the beginning of winter and the mines do not reach their maximum size until February when they assume the form of a large irregular blotch. It is at this time of year therefore, that observations can be most accurately made.

In the block of trees sprayed with 2 lbs.

per 100 gallons many trees were found showing 100 per cent control and it is probable that had the spray been applied a few days earlier the results would have been even more conclusive. At the time of spraying a few *Phytomyza* adults were observed on the wing and as oviposition occurs within a few hours after emergence it is probable that these early individuals were responsible for some of the mines which were found in the sprayed plots.

No interference with pollination appeared to be caused by the use of DDT as an excellent crop of holly was harvested. In the initial experiment carried out in 1945 some of the trees were nearly in full bloom but nevertheless a full crop of berries was produced. Bees visiting these trees did not remain long. They were observed to visit a few flowers but soon became uneasy and took flight. As they were in contact with the sprayed surfaces for only a short period, it is unlikely that the DDT would have any permanent effect on them.

CONCLUSION: From the experience gained in these experiments it is apparent the holly leaf miner can be satisfactorily controlled with a single application of DDT spray. While 2 lbs. of actual DDT to 100 gallons appears to give nearly perfect results, further experimental work may show that a weaker spray is commercially practicable. The spray should be applied not later than the beginning of May in most seasons and it may be found preferable to apply it during the last week in April.

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TABLE OF RESULTS

lbs. DDT per 100 gals.	Leaves counted	Mined leaves	%
2	4,000	26	.60
1	4,000	249	6.20
Check	4,000	2442	61.05