

# THE EFFECT OF INFESTED LEAVES ON THE OVIPOSITION OF *PHYTOMYZA ATRICORNIS* MEIGEN\* (DIPTERA AGROMYZIDAE)

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## I—INTRODUCTION

The biology and life history of *Phytomyza atricornis* Meigen has been studied by Smulyan (1914), de Meijere (1926), Melis (1935), and Ahmad & Gupta (1941). Recently, Tandon (in press) has made an extensive study on the bionomics, ecology and life history of this important pest which attacks *Brassica campestris* L. and a number of vegetable and ornamental plants. The present paper deals with the effect of infested leaves on oviposition during the non-availability of healthy leaves to the ovipositing females. In other words, if the female *Phytomyza atricornis* were forced to lay the eggs on previously infested leaves, would the latter stimulate oviposition or inhibit the rate of egg-laying. To investigate this effect, the following experiment was carried out with the pea leaf-miner *Phytomyza atricornis* under normal laboratory conditions of temperature and humidity during February-March, 1964.

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## II—TECHNIQUE

30 glass tubes (4" × 1") and 30 glass jars (10" × 8") were used. The glass tubes and the jars were divided into three sets, each consisting

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of 10 tubes and 10 jars. In each tube of the first set was placed an infested leaf with its petiole immersed in water. The mouth of the tube was covered with muslin secured by rubber band. In each of the second set of ten tubes was placed a sound unfested leaf, while in each tube of the third set was placed a sound leaf with artificial punctures made on its surface.

Each tube was then covered by an inverted jar (10" × 8") and in each jar were introduced a pair of *Phytomyza atricornis* (a male and a female of the same age). The leaves were changed daily and the eggs laid were counted and the results tabulated.

TABLE 1.—Statement showing the number of eggs laid by mated female of *Phytomyza atricornis* on sound leaves, infested leaves and leaves with artificial punctures, respectively.

Number of Trials	Number of Eggs laid on		
	Sound leaves	Infested leaves	Leaves with artificial punctures
1.	514	731	543
2.	507	731	540
3.	573	743	498
4.	520	745	528
5.	530	705	546
6.	503	717	499
7.	609	700	487
8.	413	678	515
9.	639	741	505
10.	406	715	493
<b>TOTAL EGGS :</b>	5214	7206	5154
<b>AVERAGE :</b>	521.4	720.6	515.4

### III—DISCUSSION

A glance at the above table reveals that the previous infestation of leaves, contrary to expectation, stimulated the rate of egg-laying and the number of eggs laid increased from the normal 521.4 eggs per leaf to 720.6 per leaf, exhibiting a significant increase of 38.3%.

There can be probably only two differences between sound leaves and infested ones viz., (i) the smell of infested leaves, and (ii) the punctures found on infested leaves.

It is quite clear by comparing the second and last column of the table that artificial punctures made on sound leaves did not make any change in the number of eggs laid.

These results indicate that presumably the smell of infested leaves was at the back of this increase in the number of eggs laid. This smell might have acted as a stimulant to oviposition.

### IV—SUMMARY

1. Forcing the females of *Phytomyza atricornis* to oviposit only on previously infested leaves results in a significant increase of approximately 38.3% in the number of eggs laid.

2. There was not much difference between the number of eggs laid on sound leaves and those with artificial punctures made on them.
3. The smell given off from the infested leaves probably acted as a stimulant to oviposition.

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