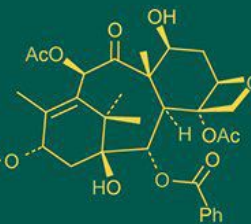
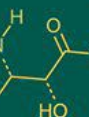
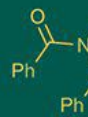
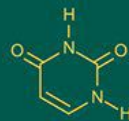
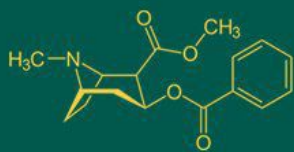


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Seasonal incidence of leaf. Miner (*Phytomyza horticola* H.) on vegetable pea

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Abstract

The seasonal incidence of pea leaf miner (*Phytomyza horticola* G.) on vegetable pea was assessed during rabi season of 2023-24 at the research farm of Nalanda college of Horticulture, Noorsarai, Nalanda. The pooled data revealed that the incidence showed continuous fluctuation, with first appearance being during the 46th meteorological week (0.82 leaf miner per plant). Pest population gradually increased and reached it's peak level of (3.10 leaf miner per plant) during 4th SMW, then reached to minimum (0.10 leaf miner per plant) during 8th standard metrological week. The correlation studies indicated that the pea leaf miner infestation exhibited significant positive correlation with maximum temperature and non-significant negative correlation with minimum temperature, non-significant positive correlation with morning evening humidity and non-significant negative correlation with evening humidity. Rainfall showed non-significant negative correlation with the pest population.

Keywords: Incidence, correlation, *P. horticola*, SMW, temperature, humidity

Introduction

Garden pea (*Pisum sativum* L) is an important rabi grain legume crop. It is an herbaceous annual crop in the leguminosae family. The crop is cultivated for it's tender and immature pods for use as a pulse. Peas are highly nutritive and is a popular vegetable produced for it's fresh shelled green seeds which are high in protein content (7.3 gm/100gm), vitamin A (138 I.U), calcium (21 mg), phosphorus (140 mg), energy (82 kcal.), carbohydrates (14.7gm/100gm) and sugars (5.68 gm/100gm) of edible portion (Nitin .et.al.2018). It has a higher protein content which includes critical amino acids like lysine (Nawab et.al.2008). India is the world's second-largest producer of peas, accounting for 21% of global output. Garden pea is a significant grain legume crop in India, which produces 54.22 thousand tonnes over an area of 5.40 thousand hectares.

Materials and Methods

A field experiment was conducted during rabi season 2023-24 at the research farm of Nalanda college of horticulture, noorsarai, nalanda. The variety, Harbhajan was raised in a plot size of 10m. 3m. in a completely randomized block design with three replications. All the recommended agronomic practices were followed except plant protection. Weekly observations were recorded on randomly selected plants. The observations were recorded at weekly interval from germination to till harvest of the crop. The incidence per plant was worked out by counting the number of larvae and pupae on randomly selected 3 leaves/plant. The obtained data were correlated with weather parameters (temperature, relative humidity, wind velocity, rainfall and bright sunshine hours) to determine the correlation between seasonal incidence of pea leaf miner and the various weather parameters.

Results and Discussion

The occurrence of the data on the pea leaf miner (*Phytomyza horticola* G.) was noted at weekly interval and are presented in table 1. The observation on the incidence of pea leaf miner during the rabi season 2023-24 revealed that the occurrence of the pest on pea started from 46th standard meteorological week and continued over the growing time of pea. The population of pea leaf miner ranged from 0.82 to 1.88. The pest population increased and reached it's peak in 5th meteorological week. The present findings are in conformity with

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Hemalatha and Maheswari (2004) ^[3] who observed that the pest appeared from nursery stage of the crop to the maturity of crop. The infestation of leaf miner observed from 3rd week of December to the last week of February (8th SMW). In accordance with scientists, Galande and Ghorpade (2010) ^[2], they reported that the maximum incidence of the pest was observed from January to April with highest incidence in the month of February. Srivasta and Singh (1972) ^[7] also reported maximum population of pea leaf miner of pea in February and March.

Table 2 revealed that pea leaf miner infestation exhibited significant positive correlation with maximum temperature ($r=0.639$) and non-significant negative correlation with maximum temperature ($r=-0.151$), non-significant positive correlation with morning relative humidity ($r=0.036$) and

non-significant negative correlation with evening relative humidity ($r=-0.471$). Wind velocity and sunshine hours showed non-significant positive correlation ($r=0.193$) and ($r=0.374$) respectively. However rainfall showed non-significant negative correlation ($r=-0.102$). These findings are in agreement with Mondal and Kumar (2012) ^[4] who observed negative and non-significant correlation of rainfall with leaf miner infestation. The study conducted by Choudhary and Rosaish (2000) ^[1] on the incidence of weather parameters on the leaf miner incidence revealed that minimum temperature and evening relative humidity had negative correlation while wind velocity and sunshine hours showed positive correlation with leaf miner incidence on vegetable pea.

Table 1: Seasonal incidence of pea leaf miner in Rabi season 2023-24.

Obs. No.	Date of obs.	SMW	Pea leaf miner/plant
01.	01.12.2023	45	0.00 (0.70)
02.	08.12.2023	46	0.82 (1.14)
03.	15.12.2023	47	0.96 (1.20)
04.	22.12.2023	48	1.36 (1.36)
05.	29.12.2023	49	1.47 (1.40)
06.	05.01.2024	01	1.74 (1.49)
07.	12.01.2024	02	1.92 (1.55)
08.	19.01.2024	03	2.18 (1.63)
09.	26.01.2024	04	3.10 (1.89)
10.	02.02.2024	05	1.88 (1.54)
11.	09.02.2024	06	0.75 (1.11)
12.	16.02.2024	07	0.72 (1.10)
13.	23.02.2024.	08	0.10 (0.77)
The average population throughout season		-----	1.30

Table 2: Combined direct and indirect effect of the abiotic factors on the population of pea leaf miner in Rabi season, 2023-24

Abiotic factor	Temperature		Relative humidity		Rainfall (mm)	Wind speed (km/hr)	Sunshine hrs.
Pea leaf miner	0.639*	-0.151	0.036	-0.471	-0.102	0.193	0.374

Conclusion

Based on the results of present study, it can be concluded that pea leaf miner (*Phytomyza horticola* 6.) commenced from 2nd week of December and till 1st week of February. Thereafter population declined in subsequent meteorological weeks. Maximum temperature showed significantly positive correlation where as evening relative humidity and rainfall showed non-significant negative correlation with pea leaf miner incidence.

References

- Choudhary DPR, Rosaiah B. Seasonal occurrence of *Liriomyza trifoli* (B) on tomato crop and its relation with weather parameters. Pest Manag Econ Zool. 2000;8(1):91-95.
- Galande SM, Ghorpade SA. Population dynamics of serpentine leaf miner, *Liriomyza trifoli* (B.) on tomato and its relation with meteorological parameters. J Universities. 2010;35(1):89-92.
- Hemalatha B, Maheswari TU. Biology and seasonal incidence of serpentine leaf miner, *Liriomyza trifoli* (B.) on tomato in southern zone of Andhra Pradesh. Indian J Entomol. 2004;66(2):107-110.
- Mondol D, Kumar A. Seasonal incidence of *Chromatomyia horticola* on pea. Ann Pl Protec Sci. 2012;20(1):225-227.
- Nawab NN, Subhani GM, Mahmood K, Shakil Q, Saeed A. Genetic variability, correlation, and path analysis studies in garden pea. J Agric Res. 2008;46(4):333-340.
- Nitin K, Hem S, Lomash K, Visvash V, Rahul S, Ankit K, Ajay K. Seasonal abundance and effect on insect pests associated with vegetable pea crop under abiotic factors of U.P. J Pharmacogn Phytochem. 2018;7(1):1689-1693.
- Srivastava AS, Singh YP. Bionomics and control of pea leaf miner *Phytomyza atricornis* (M.) (Agromyzidae, Diptera). Z Indian J Entomol. 1972;70(4):437-440.