Varietal Preference of *Liriomyza trifolii* (Burgess) to Indian Bean

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The serpentine leaf-miner, *Liriomyza trifolii* (Burgess) (Agromyzidae : Diptera), a new pest introduced recently in India, has been observed damaging many crops including Indian bean. It seems to prefer this host. Fagoonee and Toory (1983) reported that the density of leaf trichomes and nutritional status of the food plants are important in selection behaviour of this fly. The present study was undertaken to know the selection behaviour of this pest on Indian bean.

Twenty-four varieties of Indian bean grown at the Vegetable Research Farm, Gujarat Agricultural University, Junagadh during winter of 1994-95 were screened against this pest. Three leaves (top, middle and bottom) of the selected plants were observed to count the number of mines per leaf. Number trichome and stomata per 1.5 mm diameter

TABLE 1

Mines density and feeding punctures of *Liriomyza trifolii* on different Indian bean varieties and their morphological characters.

Sr. No.	Variety	No. of mines/leaf	Number / 1.5 mm diameter		
			Feeding punctures	Stomata	Hairs
1.	No. 7022	1.50* (0.66)	0.71 (0.00)	2.99 (9.00)	2.26 (4.66)
2.	JDL-37	2.23 (4.73)	2.63 (6.66)	1.13 (1.33)	2.11 (4.00)
3.	JDL-77	1.05 (0.66)	2.66 (6.66)	2.70 (7.33)	1.52 (3.00)
4.	JDL-79	1.09 (0.80)	3.17 (10.00)	2.08 (6.00)	2.72 (7.00)
5.	JDL-85	2.29 (5.66)	3.47 (11.66)	1.99 (4.00)	3.10 (8.66)
6.	JDL-17	2.37 (5.33)	4.55 (20.66)	1.62 (2.66)	2.68 (7.00)
7.	JDL-53	1.82 (3.19)	4.21 (17.33)	1.91 (3.66)	3.01 (8.66)

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1.	2.	3.	4.	5.
8. JDL-71	2.53 (6.00)	1.26 (1.33)	2.06 (4.33)	2.84 (7.66)
9. JDL-18	1.58 (2.26)	1.00 (0.66)	2.31 (5.33)	2.70 (7.00)
10. JDL-152	1.52 (2.13)	2.47 (5.66)	2.50 (6.33)	1.43 (2.00)
11. T-2	1.42 (1.73)	3.18 (9.66)	2.93 (8.66)	3.48 (11.66)
12. No. 7010	1.03 (0.73)	2.70 (7.00)	3.16 (10.00)	3.74 (13.66)
13. M-6802	1.42 (1.66)	4.27 (18.00)	2.23 (5.00)	4.00 (15.66)
14. JDL-73	0.78 (0.13)	3.10 (10.00)	3.60 (13.00)	3.48 (11.66)
15. Virpur	0.96 (0.53)	1.18 (1.33)	2.38 (5.66)	2.25 (11.66)
16. Nylone Deshival	01.04 (0,66)	2.75 (7.33)	3.16 (10.00)	4.52 (20.33)
17. Nylone Kalabij	2.81 (7.46)	3.66 (13.00)	2.08 (4.33)	3.05 (9.00)
18. Papadi Rani	0.91 (0.40)	1.85 (3.00)	2.94 (8.66)	3.07 (9.00)
19. Edar Papadi	0.71 (0.00)	4.63 (21.00)	2.31 (5.33)	2.90 (8.00)
20. IC-22006	1.30 (1.40)	3.42 (11.33)	2.08 (4.33)	2.39 (5.33)
21. IC-16167-1	2.64 (6.73)	3.55 (12.33)	2.08 (4.33)	2.58 (6.33)
22. IC-16862	2.12 (4.73)	3.71 (13.33)	1.91 (3.66)	3.93 (15.00)
23. Inbred, 24 line	1.27 (1.20)	3.20 (10.00)	1.99 (4.00)	1.78 (3.00)
24. Inbred, 30 line	1.38 (1.73)	3.27 (10.33)	1.99 (4.00)	2.31 (5.00)
S. Em. ±	0.24	0.32	0.12	0.22
C. D. (P = 0.05)	0.68	0.90	0.34	0.63

* $\sqrt{x + 0.5}$ transformed values,
Figures in parentheses are original values.

area on each leaf were counted under the microscope. The data obtained are presented in Table 1.

No mines were recorded in Edar Papadi. Minimum number of mines (0.13-0.80) were recorded in JDL-73, Papadi Rani, Virpur, No. 7022, JDL-77, Nylone Deshival and JDL-79. Maximum mines were observed in Nylone Kalabij (7.46), Ic-16167-1 (6.73), JDL-71 (6.00), JDL-85 (5.66) and JDL-17 (5.33). Feeding punctures were absent in No. 7022, and least number of punctures were recorded in JDL-18 (0.66), followed by JDL-71 (1.33) and Virpur (1.33). Highest feeding punctures were observed in Edar Papadi (21.10), followed by JDL-17 (20.7). Edar Papadi, Papadi Rani, Virpur, No. 7022, JDL-77, Nylone Deshival, No. 7010, and JDL-79 resisted damage, while, Nylone Kalabij, IC-16167-1, JDL-85, JDL-71 and JDL-17 were susceptible. No. 7022, JDL-18, JDL-71 and Virpur were resistant to feeding of female flies, while Edar Papadi and JDL-17 were susceptible.

Correlations between leaf moner damage and plant characters

Data in Table 1 indicated that mines and feeding punctures were positively correlated (0.2184). Mines density was associated negatively with stomata (0.6210) and trichome density (0.0495). Mines density was strongly related with stomata. This meant that mines density increased with an increase in stomata density. Feeding punctures were associated negatively with stomata density (0.3468), indicating that feeding punctures decreased with an increase in stomata density. Trichome density possibly did not interfere in feeding activity. Varieties having hooked trichomes had less feeding punctures. This observation was in confirmity with that of Quiring *et al.* (1992).

This study concluded that in Indian bean, Edar Papadi, JDL-73, Papadi Rani, Virpur, No. 7022 and Nylone Deshival were resistant to leaf miner. Higher number of stomata were found related to resistance to this pest. Therefore, stomata density may be considered as a major trail to relief for resistance to *L. trifolii* in Indian bean.

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