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VARIETAL EFFECT OF MUSTARD CROP IN POPULATION FLUCTUATION OF MUSTARD APHID (*Lipaphis erysimi*) KALT.

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ABSTRACT

Six cultivars of mustard (*Brassica Compestris* L.) were screened against aphid *Lipaphis erysimi* kalt. During Rabi season. Vaibhav variety was found least susceptible to the attack of aphid followed by Basanti, Rohini and Varuna showing the incidence and intensity as 6.93 and 5.86, 7.13 and 6.93, 9.59 and 9.07 respectively. On the basis of incidence Bardan variety was found most susceptible to aphid followed by Hyola (401) showing 10.93 and 10.59 per cent in infested flowers, while on the basis of intensity it was vice versa, *i.e.* most susceptible varieties were Hyola (401) and Bardan provided maximum, 13.19 and 12.93 aphid per inflorescence, respectively.

Kaywords: screening, Cultivars, Incidence, Intensity Susceptible, inflorescence.

Introduction

Mustard is an important oilseed crop cultivated for the sale of its seeds which is condiment and valuable for oil, pickle, curies and vegetable. The oil cake is mostly used as cattle feed and soil pest. Now a day's its oil is also used as grain protectant in storage pests.

Among all the available control measures the development of resistant varieties against pest species have proved to be a sound method for management of pest population. The use of resistant varieties has advantageous over other control measures because this method not only protects the crop from pest attack but also shown enough potentiality in inducint a constant presure to each generation of the pest to lower down the rate of population build up.

Mustard crop is attacted by a number of insect pests at various stages of its growth stage (Bakhetia and Sekhon, 1984), out of which during early stage, the crop is severely attacted by painted bug *Bagrada cruciferarum* (kirk.) and mustard saw fly, *Athalia proxima* (klug.), while in the later stage, the crop is infested by aphid, *Lipaphis erysimi* (kalt.) an pea leaf minor, *Phytomyga atricornis* (Meig.) Among the insect-pests attacking on mustard crop. The aphid *Lipaphis erysimi* (kalt.) has much economic importance and cause serious damage to mustard crop.

The integrated pest management (IPM) is the only way to over come these serious problem for eco-friendly cultivation of mustard, which will include not only the chemical control but an array of other practices neet to be blended for efficient and economic management strategies for mustard aphid, which will certainly provide sustainable expansion to the productivity of this crop.

Materials and Method

The field experiment for studying the population fluctuation of aphid its relationship with abiotic factors, varietal resistance and need of application of chemical insecticide was conducted during Rabi season.

Six varieties of mustard were sown on October 17, in 5 x 7.65 m. plot size, row to row distance 45cm and plant to plant distance 20 cm in RBD. design to screen for the source of resistance against aphid.

The middle row of each plot were selected randomly to record the observation on incidence and intensity of mustard aphids after that three plant were selected from each row to (one from lower, second from middle, and third

from uppper protion). The data on intensity was recorded as number of aphids and incidence as percent.

Results and Discussion

Table-1 indicate that the infestation of aphid in the first week was less in the varieties, Basanti, Rohini and (401) but the response of varieties in case of intensity was found different by providing 5.00 and 4.33 number of aphid per inflorescence on Vaibhav and basanti. While Vaibhav and Rohini were also similar in statistically. The variety Varuna and Bardan were also gave at par intensity of aphid, but However, Hyola (401) was most preferred (10.33 aphid/inflorese cnce) The percent inflorescene *ie.* 10.00 and 11.33 was recorded on Vaibhav and basant while Varuna and Rojomo showed 13.33 and 12.66 percent. The Hyola (401) and bardan having 17.66 and 17.66 per cent infestation of inflorescence respectively. In the second weed the Vaibhav was found least preferred variety showing only 8.00 aphid per inflorescence followed by basanti & Rohini which are provided 11.33 and 12.00 aphid. The preference of choice for Varuna was intermediate, 14.00 followed by Bardan and Hyola (401) which are provided higher 19.66 and 21.33 aphid per inflorescence repectively.

In the third week the incidence of mustard aphid was found least in Vaibhav, basant and Rohini showing 11.00, 10.33 and 11.33 per cent inflorescence infestation, respectively, Varuna was found intermediate having 14.33 per cent inflorescence infestation, while in Hyolo (401), it was higher 15.66 followed by Bardan 17.00 higherst per cent. It is clear that intensity was also found least in Vaibhav, Basanti and Rohini showing 10.33 aphid per inflorescence in each and these were at par with each other. Varuna was again noted intermediate in preference showing only 14.00 aphids per inflorescence, followed by statistically similar Hyola (401) and Bardan.

In the fourth week the variety Rohini was found least prefered by the aphid showing 5.33 per cent inflorescence infestation, which was at par to Vaibhav and basanti. The Varuna was intermediate and similar to Hyola (401) while Bardan was found most susceptible variety showing 10.00 per cent inflorescence infestation. The least number of aphids 5.66 per inflorescence was present in Vaibhav, Basanti and Rohini, followed by Varuna, Hyola (401) and Bardan, showing 7.00, 9.66 and 12.00 aphids per inflorescence and this were significantly different to each other.

In the fifth week the inflorescence of Basanti varity were least infested by aphid 0.66 per cent followed by Vaibhav, hyola (401) and Rohini showing 1.00 and 1.33 and 1.66 per cent infestation respectively. The highest infestation being 2.66 per cent was reorded on Varuna and Bardan. On the basis of intensity variety Vaibhav, basanti, Rohini and Hyola (401) were statistically similar in their response against aphid having 0.33, 0.33, 1.33 and 1.33 aphid per inflorescence, respectively. The variety Varuna and Bardan showing maximum 2.33 and 2.33 aphid per inflorescence respectively.

From the table1 the average means of incidence and intensity of five week ends, the variety Vaibhav recorded the least incidence and intersity *ie*. 6.33 and 5.86 respectively. Thus this variety was least preferred by aphid while the variety Rohini and Vaibhav showed intermediate effect of preference. However, on the basis of incidence variety vardan was found most susceptible followed by Hyola (401) while it was vice-versa on the basis of intensity Our results are suppported by in the finds of Prasad and Padke (1980) that the population of aphid as higher on yellow saron and toria varieties of *Brassica compestris* lower on rai, *B. Juncea* and lowest on "Banarasi" B. *nigra*, Vir and Henery (1987) reported that the mustard variety (T-59) and Durgamani as most resistant to the attack of *L. erysimi.* Singh *et al.* (1990) reported that the alates of aphid begin to appear in 3rd week of January of the crop induced the date population high wind speeds helped migration maximum alate production altered in the last week of February and first week of March, when the minimum and maximum temperature averaged 9.6 and 25.6^{0}c respectively. Water stress of the host plant and increasing photoperiod enhanced alate production. Talrur *et al*. (1991) reported from Pakistan that *B. Compestries cv*. P-63 and

P-7 and *B juncea* CVS-9 were the most resistant cultivars to aphid, *L. erysimi.* Raj *et al.* (1992) reported the varieties *B Juncea, B Carinata* and *B. napus* group as more resistant to *L. erysimi* than the varieties in *B. compestris* group. In the present findings Vaibhav is found least susceptible in comparison to Basanti, Rohini and Varuna, for this change of sequence, other factors may also be responsible as Kalra (1987) determined more than 80% role of cultural practices on aphid.

Table:1. Over all effect of different varieties on the incidence and intensity of mustard aphid, *L. erysimi* Kalt.

Variety	Means of incidence (% infested infloreseence) Week-end Times							Means of incidence (No aphid per infloreseence) Week-end Times						
	I 05 Feb.	II 13 Feb	III 21 Feb	IV 27 Feb	V 05 March	Total	Avg.	I 05 Feb.	II 13 Feb	III 21 Feb	IV 27 Feb	V 05 March	Total	Avg.
Varuna	9.33	13.33	14.33	8.33	2.60	47.98	9.59	8.00	14.00	14.00	7.00	2.33	45.33	9.07
Vaibhav	6.66	10.00	11.00	6.00	1.00	34.66	6.93	5.00	8.00	10.33	5.66	0.33	29.32	5.86
Basanti	6.66	11.33	10.33	6.66	0.66	35.64	7.13	4.33	11.33	10.33	5.66	0.33	31.98	6.39
Rohini	7.00	12.66	11.33	5.33	1.66	38.38	7.68	5.33	12.00	10.33	5.66	1.33	34.65	6.93
Hyola (401)	10.00	17.00	15.66	9.00	1.33	52.93	10.59	10.33	21.33	23.33	9.66	1.33	65.98	13.19
Bardan	7.33	17.66	17.00	10.00	2.66	54.65	10.93	8.66	19.66	22.00	12.00	2.33	64.65	12.93
SE (m)±	0.56	0.51	6.51	0.47	0.39			0.38	0.66	1.35	0.51	0.49		
CD at 5%	1.24	1.31	1.31	1.05	0.87			0.86	1.47	2.99	1.33	111		

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