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STUDIES ON THE VARIETAL RESISTANCE OF WHEi\T AGAINST WHEAT APHID

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Studies on the varietal resistance of wheat against wheat aphid were conducted during 1998-99. The experimental material consisted of 20 cultivars/genotypes of wheat including a susceptible check line. Mean population density per tiller of the wheat aphid was 1.87, 3.68, 4.01, 4.88, 4.94, 5.14, 6.40, 6.41, 6.58. 6.81, 7.27, 7.32. 7.5lJ. 8.19. 8.30. 8.36. 8.41, 10.19, 11.22 and 16.17 on wheat cultivars CHILIEUC, BAUIPRL/VEE#5, PAT lO/ALO. IL-75-2264. TANIEUCIPVN, Cont. Inq-91, ATTILA, TANIPEW/SARA, CHILIWUH3. IRENA, PSN/6CW, CHIL/CHUM-Ilt BJY/CCC. SERI/CEPEO-120.CHILlPRL.PRINA, TURACC/CHIL, MCN/IMU, GAAlPRL and CAR 422/ANA respectively. The maximum population of aphid (31.10) appeared during 3rd week of March on PSN/6CW, whereas minimum was 5.11 on IL-75-2264.

Key words: varietal resistance, wheat aphid

INTRODUCTION

Wheat aphid is an important pest of wheat crop in Pakistan (Mohyuddin, I981) which affects the yield considerably (Hinz and Daeber, 1976; Wratter and Redhead, 1976; Mosaad et al., 1992 and Montandon et al., 1993). The infestation level of aphid population has been noticed on different cultivars of wheat (Singh et al., 1972; Castro, 1980 and Montandon et al., 1993). Hence it was thought advisable to screen out wheat varieties possessing resistance against aphid; .

MATERIALS AND METHODS

Studies on varietal resistance of wheat against wheat aphid were conducted at the Experimental Farm, University of Agriculture, Faisalabad during 1998-99. The experimental material consisted of 20 varieties/genotypes of wheat including one susceptible check line. The experiment was laid out in randomized complete block design with 3 replications using a net plot size of 0.6 x 5m. Nine tillers were selected randomly and aphid population was counted at weekly interval from these tillers. The data were subjected to statistical analysis.

RESULTS AND DISCUSSION

The infestation of aphid population started in the first week of February on all the lines/genotypes of wheat and reached its peak level during the 3rd week of March. Thereafter the aphid population decreased. The most susceptible cultivar was found to be CAR 422/ANA (16.17 aphid). The. comparatively resistant (less susceptible/palatable) cultivars were TANIEUClPVN (4,49), IL-75-2·264 (4.88), PAT lO/ALO (4.00), BAUIPRLIVEE#5 (3.68) and CHILIEUC (1,87). The cultivars TURACC/CHIL (8.41), PRINA (8.36), CHILIPRL (8.30), SERIICEPEO 120 (8.19), BJY/CCC (7,59), CHILlCHUM 18 (7,32), PSN/6CW (7.27), lRENA (6.81), CHILIWUH-3 (6.58), TANIPEW/SARA (6.41), ATIILA (6.40) and control Inq-91 (5.14) displayed moderate resistance to aphids. Only two cultivars such as GAAlPRL and MCNIIMU were found to be moderately susceptible to aphids.

The data given in Table I showed that the population of aphids varied to a great deal and their number increased significantly with the passage of time, which reached the maximum level in each test line during the 3rd week of March. Aphids mainly attacked the leaves during the test period (Feb-April). However, the population of aphids was also observed on head (spikes) during the 3rd week of March. The infestation of aphids also concentrated on the stem of wheat plant during this period. As far as the incidence level of all the species of aphids on the tested cultivars is concerned, very little relevant information was available in literature. However, Singh et al. (1972) found a relatively denser population of *Sitobion avenae* on other genotypes which were not immune to this aphid. Similarly, Mosaad et al. (1992) evaluated the wheat crop and compared the damage rating. They also. reported a peak aphid population on wheat during 3rd week of March. Assaul and Peresypkina (1975) observed the incidence of aphid on leaves, leaf scales and rarely on ears during February. However, Sus (1978) observed the aphids on stem too, whereas Dyadechko and Ruban (llJ75) reported that aphids appeared normally at the ear formation stage and also had a considerable increase in population during this stage. Grigorov (1976) observed the increase of aphid species on ears during March-April, The present studies showed that emergence of wheat aphid varied on tested cultivars of wheat throughout the season (Feb-April). The statistical analysis showed that all the 20 genotypes exhibited significant differences from each other during the test period and the peak aphid population on wheat was witnessed during the 3rd week' of March.

Table 1. Aphid population on various lines/genotypes of wheat

Varieties/genotypes	Mean aphid population per tiller							
	Feb. 9,1999	Feb. 16,1999	Feb. 23,1999	March 2,1999	March 11,1999	March 18,1999	March 25,1999	April 1,1999
MCN/IMU	[illegible]	11.78 a	[illegible]	1.[illegible]	2.22 cde	27.33 efg	14.67 cdef	11.[illegible] cd
ATTILA	1.78 fgh	2.00 gh	[illegible]	[illegible]	1.78 ghi	15.11 hij	13.67 ij	12.67 gh
PAT [illegible]	6.78 ab	4.11 def	[illegible]	[illegible]	1.70 bc	6.78 cde	3.33 cde	3.67 c
SERI/CEPEO [illegible]	7.00 bc	[illegible]	3.56 a	[illegible]	6.44 ghi	[illegible]	15.11 fghi	15.22 efg
TAN/PEW/SARA	8.67 a	[illegible]	9.89 c	[illegible]	1.70 b	[illegible]	8.44 hij	6.89 defg
TAN.EUC/PVN	3.33 defg	[illegible]	4.67 cdefg	[illegible]	2.44 cd	8.44 bcd	6.22 c	3.69 defg
PRINA	[illegible]	3.89 defg	3.22 b	[illegible]	1.89 cdef	[illegible]	17.[illegible] fghi	7.89 def
IRENA	[illegible] cd	7.11 bc	7.22 b	2.56 de	1.67 a	[illegible]	9.11 cd	9.33 defg
TURACC/CHIL	[illegible]	7.78 b	7.67 c	3.60 cd	2.89 ghi	17.56 abc	[illegible]	8.44 cd
CHIL/PRL	[illegible]	4.78 de	4.67 cde	3.56 fghij	1.00 fgh	25.00 cde	[illegible]	12.67 def
CHIL/CHUM [illegible]	[illegible]	[illegible]	3.78 cdefg	1.67 b	1.11 defgh	19.11 cde	[illegible]	9.22 cde
PSN/6 CW	[illegible] defgh	[illegible]	[illegible]	5.22 efg	1.33	19.44 a	12.22 a	[illegible]
CAR 422/ANA	[illegible] cde	[illegible]	0.56 cd	[illegible] 1	24.67 efgh	[illegible] 1	33.56 j	[illegible]
[illegible]	1.56 gh	[illegible] cd	4.11 cd	0.33 ghijk	1.22 defgh	1.11 ghi	0.67 ghi	[illegible]
IL-75-2264	3.89 def	[illegible]	4.11 defg	1.44 bc	1.33 cde	10.44 ij	6.67 ij	[illegible]
BAU/PRL/VEE#5	[illegible]	[illegible]	2.67 cd	4.44 de	1.78 hi	5.11 ab	3.78 b	[illegible]
GAA/PRL	1.22 gh	4.11 de	4.22 cdefg	3.00 efgh	1.[illegible]	26.78 cde	26.44 cde	[illegible] cde
BJY/CCC	5.22 cd	[illegible] efg	[illegible]	[illegible]	1.[illegible]	19.00 efg	15.56 defgh	11.33 cde
CHIL/WUH3	3.00 cfgh	[illegible] def	0.41 gh	6.33 bc	[illegible]	15.89 ghi	[illegible]	10.89 cfg
[illegible] Inq-91	[illegible] ab	4.67 fg	[illegible] fgh	2.88 [illegible]	[illegible] ij	8.44 hij	[illegible]	8.67 fgh

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