

IMPACT OF ABIOTIC FACTORS ON THE POPULATION DYNAMICS OF WHITEFLY AND LEAFHOPPER IN COTTON

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Abstract—Studies on population dynamics of whitefly, *Bemisia tabaci* and leafhopper, *Amrasca biguttula biguttula* on twenty different cotton genotypes including varieties, hybrid and Bt hybrids were carried out under natural field conditions at the Cotton Research Farm, Department of Genetics & Plant Breeding, CCS HAU, Hisar during kharif - 2015. Observations were recorded by counting the number of adults of whitefly and nymphs of leafhopper on three leaves per plant representing top, middle and bottom canopy. Data was recorded at 15 days interval throughout the crop season from three plants per genotype. The population of both the pests was recorded above ET (Economic threshold level) since last week of June and increased onwards upto 37th standard metrological week (mid September). Mean value pest population for genotypes indicated that maximum infestation of whitefly and leafhopper insects was recorded maximum during 31st standard week (68.25 adults/leaf and 1.79 nymphs/leaf), respectively. Observations recorded revealed that on different genotypes whitefly and leafhopper population ranged from 2.12-96.52 adults/leaf and 0.00-3.52 nymphs/leaf during the crop season, respectively. On the basis of season's average, maximum incidence of whitefly was recorded in RCH-791 BG-II (51.79 adults/leaf) whereas in case of leafhopper, it was recorded in Ankur- 3244 BG-II (1.44 nymphs/leaf). Minimum incidence of whitefly was recorded in H-1098i (15.18 adults/leaf) whereas in case of leafhopper, it was recorded in HD-432 (0.25 nymphs/leaf). Incidence of both the pests was positively correlated with temperature and relative humidity while it was negatively correlated with rainfall. Therefore, the population of both the pests was found more in Bt genotypes than varieties/ hybrids and their population increased with temperature and humidity whereas decreased with rainfall.

Keywords: Climate change, ET, *Bemisia tabaci*, *Amrasca biguttula biguttula*, cotton, correlation, genotypes.