**IMPACT OF CLIMATE CHANGE ON POPULATION DYNAMICS OF CERTAIN FIELD CROP INSECT PESTS**

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**Abstract**

Most of the field crops are damaged by different species of insect pests every year around the globe. Simultaneously, the population of such insect pests is also affected because of the changes occur in climate. Temperature, relative humidity, rainfall, greenhouse gasses, hailstorm, fire, drought like abiotic factors are vital in this regard. The quality and satisfactory production of cereal, legume, fodder and other cash crops have importance in terms of human as well as livestock consumption. But, most of the time, the production and quality of certain major field crops are affected due to the population density of certain notorious insect pests. Population fluctuation of insect pests is directly related to the abiotic factors of climate, particularly, temperature and relative humidity. Survival, fecundity, mode of damage, developmental rates, dispersal, timing and intensity of mating, and voltinism in insects are mainly affected due to the changes in climate. The average global surface temperature will increase up to 2.8 °C (between 1.8–4.0 °C) in 2050 according to the International Panel of Climate Change (IPCC). Global temperature is expected to rise by about 2 °C in the next few decades. Studies show that 17 °C is required for take-off, 13-15 °C for continuous flying and 6.5 °C for wing beating in aphids. 3 °C rise in temperature causes 1-3 days increase in generation time of rice seed bug, *Leptocorisa acuta*, in rice field. Exposure to elevated CO2 increases significantly in the adult population of corn rootworm and soybean aphids. Some insect species are sensitive to precipitation and are killed or removed from crops by heavy rains. Enhanced summer rainfall promotes rapid increase in the adult population of wireworm, *Agriotes lineatus*, in the upper soil but its larval stages are found more numerous. According to a study, conducted on sunn pest (*Eurygaster integriceps* Put.) in wheat field in Turkey, the average temperature and precipitation for the development period and increase in population of sunn pest are reported as 20–22 °C and 10–12 mm, respectively. In conclusion, more research works are needed for estimating the impact of climate change on field crop insect pest populations in the light of the future scenario of a sustainable agro-ecosystem.

**Keywords:** Abiotic factors, temperature, insect population, field crops, climate change