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Relative abundance of fruit flies on capsicum ecosystem in north eastern hill region of India

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Among various insect pests of capsicum, fruit flies (Diptera: Tephritidae) is considered to be a major pest causing extensive damage to capsicum. The pest not only deteriorates its quality also due to premature droppage of infested fruits. The pest status does not remain static throughout the year but changes accordingly based on abiotic factors like temperature, relative humidity, rainfall, rainy days, etc. Hence, the present study was undertaken to study the role and reliability of weather factors for predicting fruit flies incidence/catches in capsicum ecosystem under the conditions of North Eastern Hill (NEH) Region of India from March to July 2009. Three methyl eugenol based para-pheromone traps were maintained and these monitoring traps were loaded with vials immersed with a cotton wick containing 15 ml of methyl eugenol and malathion in the ratio of 3:1. Fruit flies catches were recorded weekly and data were subjected to correlation and regression analyses with average weekly weather data to find out the influence of abiotic factors on fruit flies catches. The fruit flies catches were further analyzed with regression analyses to measure the present variability in fruit flies catches explained by each weather variable. The results revealed that three distinct peaks was noticed during last week of April (400.3), first week of May (409.3) and second week of May (426.0). These peaks coincided with capsicum fruiting period in relation to April and May months in Mizoram. Among abiotic factors, the maximum temperature (r = 0.328) and maximum relative humidity (r = 0.027) showed a positive correlation, while the minimum temperature, minimum relative humidity, rainfall and rainy days had a negative correlation with trap catches of fruit flies. The abiotic factors jointly had a significant impact on population of fruit flies. The coefficient of determination (R2) was found to be 58 per cent. T-value of fruit flies population had a significantly positively correlated with maximum temperature (3.14). However, the influence of minimum temperature, relative humidity (minimum and maximum), rain fall and rainy days were found to be not significant. The present investigation on the fruit flies catches from methyl eugenol based para-pheromone traps are new records for India on this capsicum ecosystem. The major fruit fly species groups were caught from methyl eugenol based para-pheromone trap in capsicum ecosystem was Bactrocera dorsalis group.

Keywords: Seasonal incidence, fruit flies, capsicum, weather factors, methyl eugenol traps.

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