SEASONAL RESPONSES OF APHID \textit{(MACROSIPHONIELLA SANBORNI)} AND THRIPS \textit{(FRANKLINIELLA SCHULTZEI)} ON CHRYSANTHEMUM

Vivek Yadav and R. N. Singh*

Department of Entomology and Ag. Zoology, Institute of Ag. Sciences, Banaras Hindu University, Varanasi - 221 005, India.
Corresponding author- R N Singh, *e-mail : singhrnacarology58@gmail.com

(Received 20 January 2023, Revised 26 February 2023, Accepted 29 March 2023)

ABSTRACT : An experiment was conducted at the Agricultural Research Farm, Banaras Hindu University, Varanasi, Uttar Pradesh, India from November 2019 to March 2020 at eight locations. The experiments were conducted for seasonal responses of Chrysanthemum aphids and thrips. The first incidence of aphids on chrysanthemum plants was observed in the month of November at 46th Standard meteorological week (SMW) and attained its peak in January at 4th SMW. In the case of flower thrips, the first incidence was observed on 46th SMW and attained its peak at 4th SMW. The correlation analysis of aphids with weather parameters exhibited a significant negative correlation with temperature (minimum, maximum and average) whereas, negative and non-significant correlations were found with humidity (morning, evening and relative) and rainfall. The correlation analysis of thrips with weather parameters exhibited a significant negative correlation with temperature (minimum, maximum and average), whereas, it showed a negative non-significant correlation with morning relative humidity, average relative humidity and rainfall, but a non-significantly positive correlation with evening relative humidity.

Key words : Seasonal incidence, chrysanthemum, aphids, thrips, correlations.

INTRODUCTION

Many insects are known to cause severe damage to the chrysanthemum flowers at various stages of growth. Seven insect pests are reported that cause damage to this crop starting from germination to harvesting of the crop. Among them, the aphid named \textit{Macrosiphoniella sanborni} (Gillete) is a major pest of the chrysanthemum. It is a polyphagous cosmopolitan insect. The colour of this aphid is brown to black and they feed on plant tissues. These aphids also transmit plant viruses including two strains known as chrysanthemum B and chrysanthemum vein mottle virus strain that affects chrysanthemum. Nymphs and adults prefer to suck sap from the new growth of the plant such as shoots, the underside of leaves, buds, and flowers. Stunting of the growth of plants occurs due to continuous feeding by aphids and sometimes death of plants also occurs. They also excrete a honeydew substance that serves as the occurrence place of black sooty mould which affects the photosynthetic ability of plants adversely (Chan \textit{et al}, 1991; Bhattacharjee and De, 2003; Pal and Sarkar, 2009). Another insect, popularly known as flower thrips, \textit{Frankliniella occidentalis} (Pergande) / \textit{Frankliniella schultzei} (Trybom) prefers to feed on developing plant tissues such as growing tips and flower buds. When these tissues develop further, the leaves and flowers can appear grossly deformed. Western flower thrips (WFT), \textit{F. occidentalis} is one of the most important agricultural invasive pests. It is highly polyphagous and recorded on at least 244 species of 62 families (Giliomee, 1989 and Sanderson, 2005) in South Africa found the existence of thrips \textit{F. occidentalis} for the first time on the crops like rose and chrysanthemum. In countries like North America and also throughout the world, western flower thrips are found as major greenhouse pests (Shipp \textit{et al}, 1991). In horticultural crops also it is found as a major pest (Robb, 1989; Parella, 1995; Sanderson, 2005). Adult female \textit{F. occidentalis} lay 20-40 eggs into plant parenchyma tissue of leaves, flower parts, or fruits using a blade-like ovipositor to insert eggs. After hatching, two active larval-feeding stages and adults feed by piercing plant cells with their mouthparts and sucking out the contents, consequently causing extensive damage that leads to both qualitative and quantitative yield...
minimum temperature (-0.76**), mean temperature (-0.76**), rainfall (-0.49*), rainy days (-0.51*) and evaporation (-0.49*) with Scirtothrips dorsalis (Hood) population in chilli.

CONCLUSION

The first incidence of aphids on chrysanthemum plants was observed in the month of November at 46th SMW and attained its peak in January at 4th SMW. In the case of flower thrips, the first incidence was observed on 46th SMW and attained its peak at 4th SMW. The correlation analysis of aphids with weather parameters exhibited a significant negative correlation with temperature (minimum, maximum, and average) whereas, negative and non-significant correlations were found with humidity (morning, evening, and average) and rainfall. The correlation analysis of thrips with weather parameters exhibited a significant negative correlation with temperature (minimum, maximum, and average) whereas, it showed a negative non-significant correlation with morning relative humidity, average relative humidity and rainfall, but a non-significantly positive correlation with evening relative humidity.

REFERENCES


