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**Original article****Increasing thrips infestation in cultivated crops under terai region of West Bengal, India****Snigdha Samanta<sup>1</sup>, Suraj Sarkar<sup>2\*</sup>, Samima Sultana<sup>2</sup> and Bablu Ganguly<sup>2</sup>**<sup>1</sup>School of Smart Agriculture, Adamas University, Barasat, W.B.<sup>2</sup>Cooch Behar Krishi Vigyan Kendra, UBKV, Cooch Behar, W.B.\*Corresponding author: [suraj.cobkvk@ubkv.ac.in](mailto:suraj.cobkvk@ubkv.ac.in)

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**INTRODUCTION:**

Thrips, members of the order Thysanoptera, represent a diverse group of minute insects characterized by their slender body and fringed wings, posing a significant and escalating threat to a wide types of cultivated crops across the globe. The impact of thrips infestations extends beyond mere cosmetic damage, often leading to substantial yield losses, diminished product quality, and increased economic burdens for agricultural producers (Mohammedamin and Guta, 2021). The pests employ their piercing and sucking type mouthparts to feed on plant tissues thereby causing a range of symptoms from silvery or bronze discoloration on leaves and fruits to distorted growth patterns and in severe cases plant death may occur (Deka *et al.*, 2020).

**Nature of loss:**

The extent of thrips infestation can vary significantly across different crops, influenced by factors such as host plant susceptibility, environmental conditions, and the presence of natural enemies. Understanding the intricate dynamics of thrips infestations, including the factors driving their proliferation and the specific species involved, is crucial for developing effective management strategies and mitigating their detrimental effects on agricultural productivity. In chilli crops, yield losses attributed to thrips range from 30-50% (Rachana *et al.*, 2022; Veeranna *et al.*, 2022). Alarmingly, in regions like Telangana, India, severe infestations of *Thrips parvispinus* have resulted in complete crop loss, with heavy flower drop exacerbating the damage (Veeranna *et al.*, 2022). Losses in field pepper due to *T. parvispinus* in Indonesia have reached 23 percent (Rachana *et al.*, 2022). Overall yield losses in chilli due to various insect pests, including thrips can range from 50-90% (Veeranna *et al.*, 2022). If thrips are not controlled, damage can routinely reduce bulb yields in onion crops (Shiberu and Mahammed, 2014). *Thrips tabaci* is a major pest that causes significant economic loss in onion, garlic, and other crops worldwide. Thrips are more problematic during dry and hot weather. Yield losses in onion due to thrips infestation ranging from 9% to 76% have been reported. *Thrips palmi* is a polyphagous pest with a wide host range of vegetable crops, ornamental plants and weeds (Veeranna *et al.*, 2022).

In West Bengal, India, *Thrips parvispinus* has emerged as a significant concern for chilli growers (Chatterjee et al., 2024). The invasive thrips *T. parvispinus* was first reported infesting chilli crops in the Alipurduar district of West Bengal in January 2024 (Chatterjee et al., 2024). Before this report, the occurrence of *T. parvispinus* had not been documented in West Bengal (Chatterjee et al., 2024). While specific data on the exact percentage of thrips infestation in various crops within West Bengal may be limited, it is well-established that thrips pose a persistent threat to crops such as vegetables, fruits, and ornamentals in the region. Sarkar et al. (2024) also reported that thrips caused heavy damage to water melon from Cooch Behar district of West Bengal, India.

#### **Biorational management strategy:**

Effective management strategies for thrips infestations encompass a multifaceted approach, integrating cultural practices, biological control methods, and judicious use of chemical insecticides. Cultural practices like crop rotation, weed control, sanitation, and physical barriers help disrupt thrips' life cycle and reduce their populations (Deka et al., 2020; Mounika et al., 2024). Biological control involves utilizing natural enemies such as predatory insects, mites, and entomopathogenic fungi to regulate thrips populations (Deka et al., 2020; Mounika et al., 2024). Chemical control should be implemented judiciously, considering the potential for insecticide resistance development and the impact on non-target organisms (Chatterjee et al., 2024). When necessary, chemical control should be implemented judiciously, with timely applications and rotation of insecticides to prevent resistance (Kumar et al., 2016). Regular monitoring through scouting and sticky traps is crucial for early detection and assessment of control measures (Mounika et al., 2024). Implementing an integrated pest management program can reduce pesticide applications without reducing production (Hara et al., 1990). Using biopesticides and biorational insecticides is one of the components of IPM in controlling thrips. (Tripathi et al., 2014). Several biopesticides such as neem oil, *Beauveria bassiana*, and *Verticillium lecanii*, have shown promise in managing thrips populations.

Entomopathogenic fungi can infect and kill thrips, providing an effective means of reducing infestation (Mounika et al., 2024). Predators such as predatory thrips, *Anthocoris* and *Orius* spp., *Chrysoperla carnea*, praying mantis, *Mallada* sp, ladybird beetles, spiders, syrphid flies etc are present in nature (Deka et al., 2020).

Additionally, reflective plastic mulch covers can deter thrips movement, aiding in reducing their infestation in crops like chilli (Mounika et al., 2024). Growers should conduct routine scouting of fields to detect thrips infestations early, focusing on leaf undersides, flowers, and fruits where thrips are commonly found (Mounika et al., 2024). Growers should implement cultural practices such as crop rotation, weed control, and sanitation to minimize thrips populations and disrupt their life cycle (Mounika et al., 2024).

Moreover, the development of resistant strains of pests and pathogens necessitates exploring novel approaches for pest management (Lakshmidivi et al., 2017). The use of precision agriculture techniques can optimize pest management strategies by monitoring crop health and environmental conditions.

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