

Surge in neem tea mosquito bug incidence in India

Neem is a potential multipurpose tree species utilized for agroforestry¹⁻³. In India, there is a large germplasm collection of neem at the ICAR-Central Agroforestry Research Institute in Jhansi, Uttar Pradesh. At present, 170 accessions (139 registered with the National Bureau of Plant Genetic Resources) are being maintained as field gene pool for neem at Jhansi institute to be utilized for research and development, including oil and azadirachtin content/yield improvement. The importance of neem in the present-day context is with respect to production of neem-coated urea that is promoted on a large scale.

Ahmed *et al.*⁴ recorded tea mosquito bug (TMB) as a serious pest in neem plantations in Rajasthan and Gujarat, and reported on the degeneration of mature neem trees. Neem was first reported as a potential alternative host for TMB, which has now become a major insect-pest on the tree⁵. These repeated incidences can be attributed to frequent climatic and rainfall anomalies which are prevalent now in the central and southern parts of India, despite neem having intrinsic insecticidal properties⁶. Recently, the degeneration of mature neem trees has been observed in post-monsoon 2021 by scientists working at the All-India Coordinated Research Project on Agroforestry (AICRP on Agroforestry) located at Mahatma Phule Krishi Vidhyapeeth (MPKV), Rahuri and Professor Jayashankar Telangana State Agricultural University (PJTSAU), Hyderabad. It has



Figure 1. A 20-year-old neem tree affected by neem tea mosquito bug in Ahmednagar district, Maharashtra, India (source: AICRP on Agroforestry Centre at MPKV, Rahuri, India).

been observed that the TMB attack induces gradual drying of neem tree twigs and branches. Similar observations have also been reported from Nalgonda, Mahaboobnagar and Ranga Reddy districts of Telangana, while in Maharashtra such symptoms have been observed in Ahmednagar and adjoining districts. The extent of drying in infected trees varied from 50% to 80%. Mature trees (15–20 years old) were more susceptible in block plantations (Figure 1). Drying was also observed in some individuals under avenue plantations. The leaves of the affected trees turned brown and the whole tree appeared as burnt and lifeless. The recent infestation in neem trees is causing a great concern among the farmers. The adults and nymphs of this infectious species suck sap from the tender shoots of neem and kill the plant tissues, leaving scope for secondary infections by phytophthora and other soil-inhabiting pathogens causing die-back disease in neem⁷.

Studies have shown that TMB infestation originates on the new flush and spreads under moist and humid conditions. Incidentally, infection was maximum during monsoon (May–September)⁸. Plucking and destroying the infected shoots is suggested to reduce the infestation percentage. Regular pruning and canopy management of neem trees are recommended to control TMB infestation, as they open up the canopy for better aeration and light penetration resulting in creating unfavourable conditions for TMB infestation.

A few studies have revealed that the concentration of potassium salt in the soil act as a repellent for TMB, and soils with high concentration of potash recorded less TMB population compared to areas having low potassium in the soil⁹. Further, as part of chemical management to control TMB, it is foliar spray of profinophos (@ 2 ml/l water) and acetamide (0.6 g/l water) or dimethoate (@ 2 ml/l water) has been suggested. Spraying must be done in the morning or evening hours on the trunks, branches, foliage and inflorescence, as the bug hides in tree trunk during daytime. For better results, the control measures for both TMB and fungus complex should be done simultaneously. Application of *Trichoderma viride* along with farm yard manure in the infested areas can also be an effective measure of pest management. These observations shall alarm neem growers the Uttar Pradesh, Tamil Nadu,

Karnataka, Madhya Pradesh and Maharashtra, jointly accounting for nearly 10.82 million neem trees in the country¹⁰ to take all precautions and/or suggested recommendations to tackle TMB.

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