



Pests of Neem, Nature of Damage and their Management

(* Amit Kumar¹, Manoj Kumar², Pushpa Singh², C.P. Rai² and Shirish Kumar²)

¹Maharana Pratap University of Agriculture and Technology, Udaipur 313001

²Dr Rajendra Prasad Central Agricultural University, Pusa (Bihar), 848125

*Corresponding Author's email: mahechamit211@gmail.com

Neem is an important plant species of family meliaceae which used as wood timber, insecticides, antioxidant, and cosmetics purpose. Neem tree attacked by many insect pests like white grub, tea mosquito bug, sal defoliator etc. Spray of phosalone 2ml / lit of water against tea mosquito bug.

Keywords: *Azadirachta indica*, Phosalone, vedic period, Phytotoxemia, Neem.

Introduction

Azadirachta indica is commonly known as neem and Indian lilac. Neem (*Azadirachta indica*) belonging to meliaceae family is one of the most suitable and valuable tree species found in India. In India, it occurs throughout the country and can grow well in every agro-climatic zones except in high and cold regions and dam sites. Today, it has been recognised as the most potential tree of India due to its evergreen nature (deciduous in drier areas) and ability to grow in even the most arid and nutrient deficient soils as well as for its many commercially exploitable by-products and environmentally beneficial characteristics (it has therefore been labelled as tree of the future). If plantation of this tree has to be taken up on large scale, it has to be integrated as an important component of agriculture under various agro-forestry systems. It has been estimated that India's Neem bear about 3.5 million tonnes of Kernels every year. From this about 7 lakh tonnes of oil might be recovered. Due to its multifarious uses, it has been cultivated by Indian farmers since vedic period and it has now become part of Indian culture. Neem extracts are used as insecticides, pesticides and fungicides. Neem oil has antibacterial, antiviral properties and used in skin and dental problems. Neem products are being used for malaria, fever, pain and also as contraceptive. Neem is also being used in cosmetics, lubricants and fertilizers. Neem bark is used in villages for rope making. Neem oil is used in soap manufacture.

Importance of Neem

Due to its multifarious uses, it has been cultivated by Indian farmers since vedic period and it has now become part of Indian culture. Neem extracts are used as insecticides, pesticides and fungicides. Neem oil has antibacterial, antiviral properties and used in skin and dental problems. Neem products are being used for malaria, fever, pain and also as contraceptive. Neem is also being used in cosmetics, lubricants and fertilizers. Neem bark is used in villages for rope making and neem oil is used in soap manufacture.

Pests of neem and their management

There are many pests causing damage in neem plant are mentioned below:

Tea mosquito bug (*Heliopeltis antonii*)- Tea mosquito bug belongs to family **Miridae** of order **Hemiptera**.

Nature of damage: Nymphs and adult suck the sap from plant tissues after sunset after sometime tender branches and leaves dry due to Phytotoxemia, burnt up appearance of affected branches, tip drying of leaves Puncturing the plant tissues with their needle like rostrum and inject toxic saliva.

Mark of identification: Adult – Black colour with red thorax, black and white abdomen and greenish brown wings.



Management:

- Spray phosalone 2ml / lit of water in the evening hours for better control.
- Spray Clothianidin 50 WDG 120 g/ha or Thiacloprid 21.7 SC 375 ml/ha or Thiamethoxam 25 WG 100g/ha or Bifenthrin 8 SC 500 ml/ha.

Sal defoliator (*Ascotis imparata* Walker): Order- Lepidoptera; Family- Geometridae

Nature of damage: The adult lays eggs in clusters over the surface of the leaves. The caterpillars feed gregariously on green portion of the leaves during early stage, leaving them skeletonised. In severe cases, it results in defoliation, which ultimately affects the plant growth.

Mark of identification: Caterpillars range in colour and pattern from green to yellow-green or brown, mimicking branches. They move in a looping pattern, as is typical when measuring worms, and have a distinctive bulbous protrusion on the thorax. In adult the base colour of the front wings is a yellowish-white, and they have numerous dark grey patterns as well as two transverse lines with sharp brownish edges.



Management:

- Collect and destroy the larvae in early stage of the crop growth.
- Spray the crop with quinalphos 0.05%, monocrotophos 0.15% or fenvalerate 0.05% at Intervals of 10-12 days.

White grub (*Holotricha serrata*): Order- Coleoptera; Family- Scarabaeidae

Nature of damage: Damage is caused by grubs where, young grubs feed on fine rootlets while mature grubs feed on both roots and pods. The affected plants show varying degrees of wilting, which ultimately die and died plants can easily be pulled out. The grubs cause infestation in patches leading to 'patchy appearance' of field.

Mark of identification: The white grub's rear end features a number of traits that let us distinguish between the various species. The term "raster pattern" refers to these features taken together.



Management: Adult Control

- Place light traps @ 1 trap/ha between 7PM to 10PM after receipt of first monsoon rains.
- Trim off trees and shrubs in and around the fields.
- Spray insecticides such as imidacloprid 17.8SL @ 1.5 ml/lt or monocrotophos 36SL @ 1.6 ml/lt during the evening hours on trees and shrubs.
- Place 3 pheromone (synthetic pheromone-Anisole) dispensers per tree at 15-meter radius for three consecutive evenings after the first monsoon rains.
- Collect and destroy the adults fallen near the base of trees.



Grub Control:

- Take up deep summer ploughing to expose the pupae to scorching sun radiation and predation by Birds.
- Use well decomposed organic manures.
- Crop rotation with jowar/sorghum and bajara/pearl millet.
- Incorporate carbofuran 3CG @ 33.0 kg/ha or phorate 10CG @ 25.0 kg/ha in soil before sowing.
- Seed furrow application of insecticides such as, thiamethoxam 25 WS @ 1.9 lt/ha or fipronil 5FS @ 2.0 lt/ha.
- Seed treatment with chlorpyrifos 20EC @ 6.5-12.0 ml/kg or imidacloprid 17.8SL @ 2 kg available seed.
- Take up early sowing if irrigation facility available.
- Drench the root zone of crop with chlorpyrifos 20 EC @ 4.0 lt/ha or quinalphos 25EC @ 3.2 Lt/ha three weeks after the adult emergence.

References

1. Handa, A. K., Sirohi, C., Arunachalam, A., Ramanan, S. S., Rajarajan, K., Krishna, A., & Kolse, R. H. (2022). Surge in neem tea mosquito bug incidence in India. *Current Science*, 122(6), 651-651.
2. Lokanadhan, S., Muthukrishnan, P., & Jeyaraman, S. (2012). Neem products and their agricultural applications. *Journal of Biopesticides*, 5, 72.
3. Murthy, M. S., Prabhuraj, A., & MBheemanna, M. (2022). Occurrence of Tea Mosquito Bug *Helopeltis antonii* Signoret on Neem in Northern Karnataka. *Indian Journal of Entomology*, 1-3.
4. Tewari, D. N. (1992). *Monograph on neem (Azadirachta indica A. Juss.)*. International Book Distributors.