# Mango Leaf Webber and Mango Gummosis: latest culprits of mango production at Amroha District, Uttar Pradesh, India

**Fazil Hasan*[1], Archana Singh[1], M.K. Dhillon[2] and Neetu Singh[3]**
[1] Assistant Professor, D/O Agricultural Sciences, S/O Sciences, Noida International University, Gr. Noida, U.P.
[2] Head and Principal Scientist, Division of Entomology, ICAR-IARI, New Delhi – 110012.
[3] Head ACAES, Amity University, Uttar Pradesh, Noida
*Corresponding Author: fazilento10@gmail.com

The mango, *Mangifera indica* (Anacardiaceae) is widely known as the king of fruits and considered as the apples of tropical regions worldwide. It is an important fruit crop grown extensively under tropical and subtropical climate and it may vary in shape, size, and colours depending upon region and varieties. The area under mango cultivation in India is around 2263 ha, the production is 19687 MT and the productivity is 8.7 MT/ha (2016-17) (Indian horticulture database, 2021). In India the leading producer states of mango are Uttar Pradesh, Andhra Pradesh and Karnataka. The major mango producing districts of Uttar Pradesh are Lucknow, Amroha, Sambhal, Muzaffarnagar and Saharanpur where mangoes are grown over about 2.5 lakh hectares in different areas. The most popularly grown varieties of mango are Dussehri, Chowsa, Langda, Fazali, Mallika, Gulab khas and Amrapali.

Amroha has more than 100 types of descripted and non-descripted varieties of mangoes, so its diversity is very high which make Amroha unique place for mangoes. The mango production in Amroha was about 22 lakh tonnes in 2021 (Nadeem Siddiqui said to TOI). However, this production is still low and several factors contributing towards its low productivity including, insect pests, diseases, physiological and environmental factors. Mango plants are attacked by 492 species of insects, 17 species of mites and around 26 species of nematodes and out of these scale insect, mealy bug, fruit fly, and mango hopper are considered as the major one. However, mango leaf webber (*Orthaga* Spp.) was considered as the minor pest but in recent year its increasing incidence in mango orchard brings the focus on its incidence and potential damage. Similarly, mango tree is also exposed to number of diseases out of this gummosis or die back is creating threats to mango orchards in recent years. The purpose of this article is to focus on the latest culprits in the mango orchards like leaf webber and mango gummosis/dieback with specific management practices, so that the early control of this pest and disease can be achieved to increase the productivity of mango especially in Amroha District, Uttar Pradesh, India.

**Mango Leaf Webber (*Orthaga* spp.; Lepidoptera: Noctuidae)**

There are many species of leaf webber observed on mango in India of which *Orthaga euadrusalis* (Walker), *Orthaga exuvinaceae* (Hampson) and *Orthaga mangiferae* (Mishra) are considered as major species. The incidence of leaf webber is more prevalent in old and neglected orchards. Leaf webber is a phytophagous insect that scrapes leaf surfaces and web leaves of mango. Upon hatching the caterpillar feed gregariously on the chlorophyll contents of the leaves by scrapping the surface of leaf lamina. At the initial stage of larval development the young caterpillar webbed together two or three leaves to build a resting site where they hide and feed on the internal portion of leaves from edges towards the midrib, thereby doing so they are

leaving behind the network of veins. As soon as the larva reaches to the maturity, the caterpillar feeds voraciously and webs the shoots and leaves together. Damaged leaves are detached from the stalk but remain entangled in webs on the tree. Numerous dried bunches of shoots and leaves are clearly visible from a distance on severely attacked mango tree. The webbed leaves appear like a small tent so it is also generally termed as the Tent caterpillar. The interwoven pouch houses a mass of several caterpillars inside it **(Fig 1A-C)**. The activity of mango leaf Webber in the mango orchards start in July and it creates havoc up to December (ICAR, 2014).

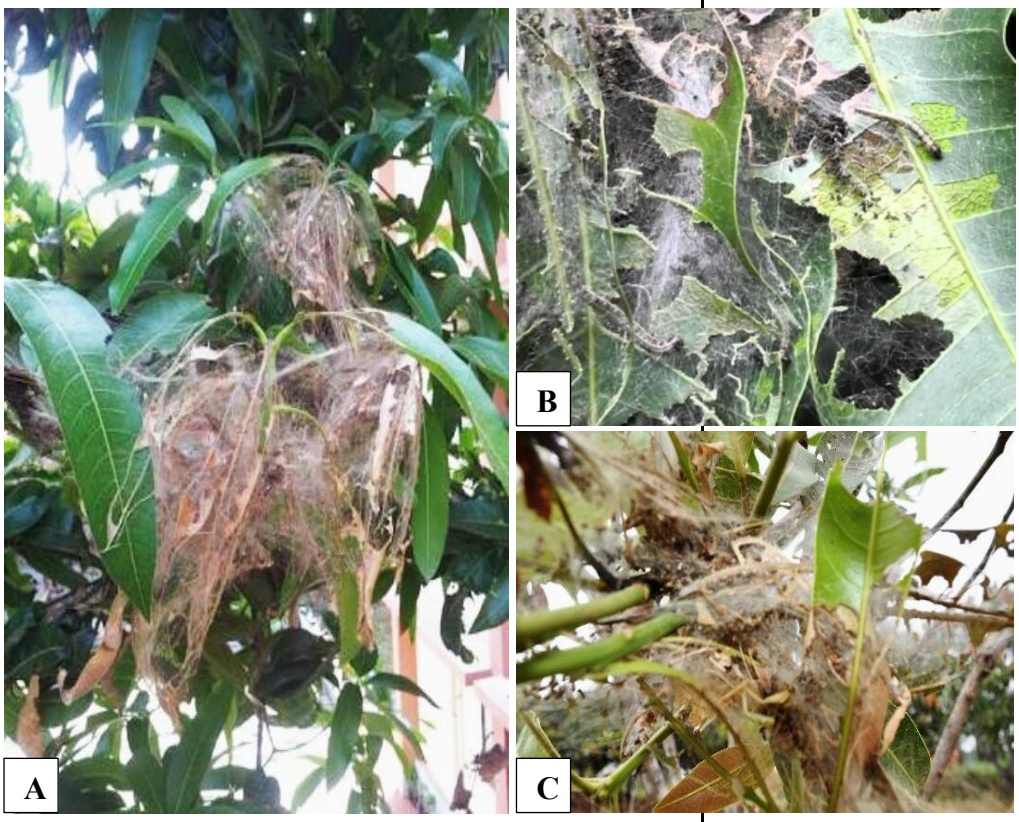


**Fig. 1. Incidence of Leaf Webber in mango orchard at Amroha District, Uttar Pradesh, India.**

**Management practices**

- ✓ The incidence of mango leaf Webber is persistent in old and unmanaged orchards with weak and huge trees where the management is not convenient. In these orchards, scraping out of the webs is difficult and may incur further management costs. So, the older orchards should be restored with dwarf-resistant varieties of mango which are easier to manage the pest if persists.
- ✓ Chemical control method is advised if the infestation and damage are economical. Botanicals like nemactine, nimbicidine, etc. can be used to manage the pest without much collateral damages. Although, there is a wide range of pesticides that can be used against the pest, insecticides like cypermethrin, chlorpyriphos, acephate are easily available in the market.

**Gummosis or Die Back**

(*Lasiodiplodia* (Syn: *Botryodiplodia*) *theobromae* (Pat.) Griffiths & Maubl.; Botryosphaeriales: Botryosphaeriaceae)

The disease is observed all year round but is most evident during June, July and August and low during cool months from November to February. The disease is more prevalent after rainy season before the onset of winters. Disease is accompanied by damage caused by trunk borers resembling *Batocera reformaculata*. It is a common soil-borne saprophyte or wound parasite, distributed throughout the tropics and subtropics. Die back or drying of plant from top downwards is prevalent in mango growing states of the country and is one of the serious diseases of mango. The disease is characterized by

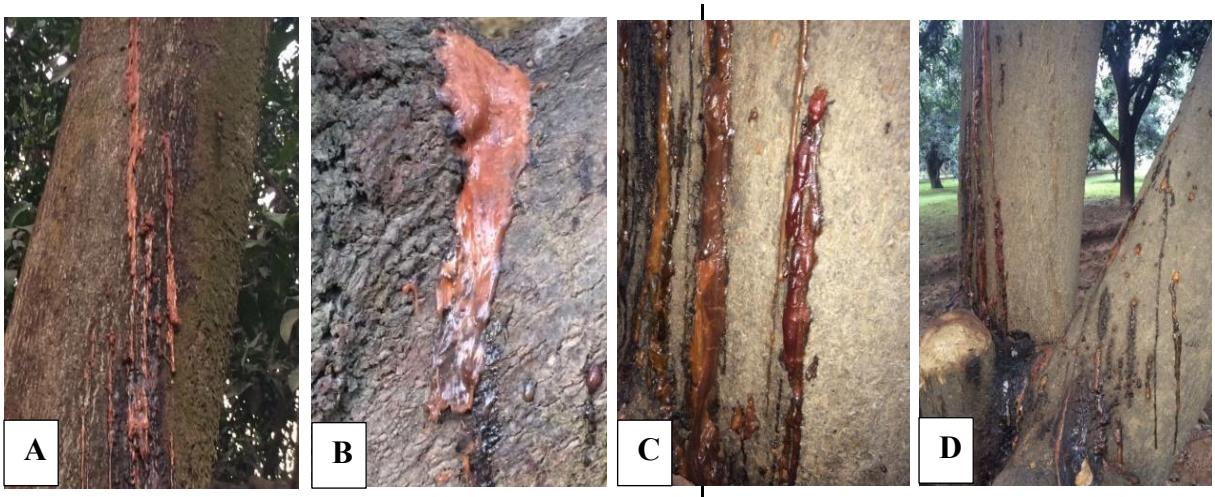


**Fig 2. Disease symptoms of Dieback or Gummosis in mango trees. (A – D) exudation of gummy material from the tree trunk.**

drying of twigs and branches followed by complete defoliation, which gives the tree an appearance of scorching by fire.

Initially die back is evident by discoloration and darkening of the bark. The dark area advances and extends outward along the veins of leaves. The affected leaf turns brown and its margins roll upwards. At this stage, the twig or branch dies, shrivels and leaf falls. This may be accompanied by exudation of yellowish-brown gum (**Fig 2A-D**).

**Management practices**

- ✓ Use of disease free propagating material.
- ✓ Avoid planting alternate host trees in the vicinity of orchards.
- ✓ Remove and destroy the infected tree parts immediately and prune some of the healthy branches to ensure the complete eradication of pathogen.
- ✓ Proper disposal and burning of affected branches.
- ✓ After pruning apply Copper Oxychloride at the concentration of 0.3% on the wounds.
- ✓ Apply Bordeaux mixture twice a year to reduce the infection rate on trees and monitor the orchard regularly to identify possible infections at early stage.
- ✓ Two foliar sprays with topsin-M (Thiophanate-methyl) @1 g/ L or foliar spray with carbendazim @ 0.1%, or chlorothalonil @ 0.2% at fortnightly interval.

* * * * * * * *