

Problem and diagnoses of Mango leaf webber infestation in Bihar

Leaf webber infestation on mango trees in Bihar commences during March and continued till December with its peak activity from June to September. The leaf webber infestation reduces the potential yield of the host tree consequently, affecting the farmers' income. The article discusses the identifying features of the leaf webber and measures to control it.

MANGO dominates among the fruit crops in terms of acreage and production in the country. Crop production is limited by an array of abiotic and biotic factors. Among biotic factors, insect pests play a vital role. Recently, mango leaf webber, *Orthaga euadrusalis* Walker (Lepidoptera: Pyralidae) emerged and attained a serious insect pest of mango status in North Bihar. The pest must gain importance because of its fast dispersal ability into the uninhabited areas of the state. It has become a major constraint in mango-growing areas of Bihar, Uttar Pradesh, and other parts of North India.

As per the reports, Mango leaf webber, *O. euadrusalis* was found to infest the mango crop in North India, while *O. exvincea* Hampson infestation was recorded in South India. The heavy infestation of this pest ravaged the mango crop during flowering as well as during the growth of new flushes. Though the pest activity was initiated during July, but in 2021 it first appeared in March and it might be due to prevailing favourable abiotic factors. However, leaf webber infestation continued till December on mango trees with several overlapping generations.

Identification and Biology

Adults of *O. euadrusalis* are medium-sized, grey-coloured moths with blackish forewings containing dark brown scales and dull, white-coloured hind wings. Adult females oviposit their dull greenish eggs singly on the

mango leaves. Hatching takes place in 4 to 7 days. The caterpillars in the preliminary stage are light green and later convert to greenish-gray in the fifth and sixth instars and ultimately to creamish in the seventh instar. The larval body appears smooth and blanketed with white seats rising from darkish warts. Two, dark black discontinuous lines are present on lateral sides, two continuous mid-dorsal white bands, and sequentially organized black spots on the body. The larva molts six times and rises to a total of seven larval instars. The larval period varies between 15 and 33 days. The caterpillars when disturbed fall with a sudden jerk. Throughout the active period, pupation occurs inside the web, but the last generation caterpillars during December-January descend onto the ground by a silken thread and pupate in the soil inside a silken cocoon adhered with soil. The hibernating larvae pupate in March, and the adult emerges by the end of April. The pupation occurs from 16 to 18 days.

Damage

The adults of webber do not cause harm directly to the host plant, while the larvae are associated with economic damage. Initially, neonate larvae feed gregariously on the chlorophyll of soft mango leaves via scrapping the leaf surface, from edges towards the midrib leaving behind the network of veins. The larva forms a web made up of leaves, silken thread, and larval excreta. The larvae's



Larva



Pupa



Adult

Different life cycle stages of Mango leaf webber



Web of leaf webber on mango tree



Silken web with larvae excreta

lacking, it has been reported to cause 25 to 80% damage. The loss due to leaf webber under favourable conditions was up to the tune of 35%. Three distinct peaks can be observed in the first fortnight of August, September, and October.

Integrated management strategies

The leaf webber management on mango trees is a very laborious and time taking process mainly because of, the large size, and micro-ecosystem of the orchard in which the pest breeds during the active period and persists in the same orchard during the off-season. In consequence, timely and proper management is a very important step to be accompanied by the successful management of leaf webber. To manage mango leaf webber, pruning of infested shoots, and removal of leaf webs by web removing device should be done accompanied by their burning. Cleaning and deep ploughing of the mango orchards to kill the hibernating larva and pupa is required. During a severe infestation, a spray of lambda-cyhalothrin 5% EC @ 2.0 ml/litre of water or chlorantraniliprole 18.5% SC @ 0.2 ml/litre of water may be applied, and if needed 2nd spray may be done after 15 days. Disturbance of webs with the help of web removing devices is recommended before spraying of insecticides. The predators, viz. carabid beetle, *Parana lactiginata*, and reduvid, *Oceana* sp. are advised to conserve the mango orchards in order to maintain the pest population below economic threshold levels.

CONCLUSION

This article illustrates that mango leaf webber is a destructive insect pest of mango. Recently, it became serious on mango, probably due to favourable climatic conditions. The Lepidoteran larvae feed on the leaves and entangle leaves with each other and make the cluster of webbed leaves. During a severe infestation, the host plant gives a burnt appearance and consequently reduces the yield potential. Thus, it indirectly affects farmers' income. It is not easy to manage the leaf webber mainly because of the rapid dispersal of pests throughout the crop ecosystem and large plant size. However, to a great extent, the pest can be managed by using integrated management tactics.

excreta-covered silken webs have tunnels inside, which are used as escape, hiding, and pupating sites for this insect. These pyralid larvae are the ravenous leaf eaters that feed initially on the web of the leaves in the cluster and then leaves into a colony. The damaged leaves finally become dry and get separated from their stalks and remain entangled in webs on the tree. A single web may contain several caterpillars and pupa inside silken cocoons. Severe infestation of leaf webber may reduce the vitality and growth of the mango trees.

Affected trees give a sickly appearance and can be identified from far due to the presence of brown dry clustered leaves. During a severe infestation, the host plant shows so many clusters of webbed and dried leaves, with a discernible burnt-up appearance. Even though the exact figure on crop losses due to mango leaf webber is

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