The Red-Banded Caterpillar in Mango Orchards: A Threat to Delicious Harvests

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Mango, referred as the king of fruits, holds a vital place in the agricultural landscape of numerous tropical and subtropical regions. It serves as a significant source of income and nutrition for millions of people worldwide. Notably, India stands as the largest producer of mango globally, contributing to 52.63% of the total mango production. Mango cultivation occupies 37.61% of the total fruit cultivation area in the country and contributes 22.21% to the overall fruit production.

However, mango farmers confront several challenges, with pest infestations emerging as a pressing concern. One such threat to mango orchards is the red-banded mango caterpillar (*Autocharis albizonalis*) Hampson. Among the various pests that target mango trees, the red-banded caterpillar is responsible for commercial crop losses ranging from 10% to 52%.

In this article, we delve into the identification and characteristics, symptoms of damage to mango fruit, damage caused by red-banded caterpillars, lifecycle of red-banded caterpillar, management strategies for combating the red-banded caterpillar menace in mango orchards and conclusion. By shedding light on the significance of addressing this pest, we aim to safeguard mango yields and ensure fruit quality.

Identification and Characteristics

- Red banded caterpillars typically have a distinctive red or reddish-brown band or stripe running along their body having a black 'collar' near the head.
- Mango sap stain streaks on mango skin may indicate the presence of an entry or exit hole caused by the red banded mango caterpillar.

Symptoms of damage to mango fruit.

- The main damage is caused by larvae which make holes in the fruit and eat the pulp. As the larvae mature, they further burrow into the kernel and stay in the seed.
- Along with the fruits, these pests also pierce the mango kernels.
- The presence of a liquid exudate from the mouth of a tunnel chewed by the caterpillar through the skin is a usual sign. This liquid trickles down to the tip of the fruit and accumulates. Although almost clear when fresh, the liquid darkens and shows up as a dark streak on the skin leading to a dark spot at the fruit tip.
- Affected fruits drop prematurely. Effects on mango fruit quality, market value, and export potential.
- When an attacked fruit is cut open to expose the inside of the seed, the larvae are likely to be seen tunnelling in the seed, but can also be present in the flesh.

Damage Caused by Red-Banded Caterpillars

- It is a pest of mango fruit in all stages of fruit development, feeding on both the flesh and the seed.
- First and second instar caterpillars fed just beneath the skin surface, tunnelling towards the seed.
- Later instar larvae fed on the inner content of the fruit i.e the seed.

Lifecycle of red-banded caterpillar

The pest has a short life cycle with 3 to 4 generations during the fruiting season. According to (Sahoo and Das, 2004) April-May was the congenial period for the fruit borer infestation when the fruits were medium in size. The life cycle of a red banded caterpillar is as follows:

- Eggs are typically laid on the fruit stalk (peduncle).
- Marble-sized fruit are preferred for egg laying.
- Eggs are usually laid in groups of two though single egg laying and egg masses containing up to 14 eggs (Krull and Basedow, 2006).
- Early-season moths may lay larger numbers of eggs than moths occurring later in the flowering season.
- After 7–12 days the eggs hatch into larvae, which tunnel into the fruit flesh and then into the seed.
- The larvae enter the fruit usually through 1 bore hole.
- Larvae feed for 15–20 days, passing through 5 growth stages (instars) as they grow.
- The first 2 instars feed on mango flesh, the later instars feed on the mango seed.
- The larvae can produce a strand of silk which they can use to move to other fruit or to nearby fruit on other trees when they run out of food, or to drop down onto the tree bark or soil to pupate.
- Pupation occurs under the bark of mango trees or in the soil and usually takes around 20 days. Larvae leave the fruit to pupate. There have been reports of larvae pupating inside the fruit, with the adult moth emerging through an exit hole. Adult moth emergence may be triggered by the onset of flowering.
- Once the adult moth emerges, after mating, the female will commence egg-laying.
- Adult female moths may live for 3–9 days and adult moths emerged from pupae during mango off-season, Krull (2004).
- Adult moth lays egg on fruits.
- The moths are mostly nocturnal, spending their time resting under leaves during the day.

Integrated Pest Management Strategies

- Cut and destroy the fallen fruit that may be infested or harbouring caterpillars.
- Protect the healthy fruits from infestation by covering them with a bag or sleeve.
- Maintenance of field hygiene/sanitation by collection and destruction of all fallen fruits
- Annually prune new mango trees to keep the trees smaller and easy to manage.
- Deposed of any pruned branches or infested plant material away from your orchard.
- Use pheromone traps to monitor and trap adult moths before they lay eggs.

- Spray neem oil at an interval of 15 days for 2 months after the mango fruit is visible.
- Spraying should be done at flushing, flowering and marble stages. This is because chemical control after the larva tunnels into the fruit is not very effective.
- Use of Lambda Cyhalothrin 5 EC @0.5-1 ml/lit water.
- Spray deltamethrin 0.0028 % (deltamethrin 2.8 EC@ 1ml/lit) at marble size and repeat after two weeks
- Two sprays of thiacloprid 21.7 SC 0.04 % (@ 2ml/lit) at 25-30 days interval.
- A single spray is never adequate. Always do repeat sprays for effective control.
- Note: All spray must be done during morning hours.

Conclusion

The red-banded caterpillar poses a significant threat to mango orchards, jeopardizing both crop yields and quality. However, through an understanding of its lifecycle, proper identification, and the implementation of effective integrated pest management strategies, mango farmers can protect their precious harvests and ensure a brighter future for mango cultivation. With ongoing research and cooperation among farmers, scientists, and policymakers, we can work towards sustainable solutions to mitigate the impact of this formidable pest on mango production.

References

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