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Major Insect Pests of Ber- A Potential Host Plant of Lac Cultivation

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The ber (*Ziziphus mauritiana* Lamark) is a species of tropical fruit tree and also a potential host plant of lac cultivation. It is also known as the desert apple, jujube, Chinee apple, Badari, Ber, Dongs, Boroi, Beri, Indian plum and Permseret. As ripe fruit have the third-highest vitamin C content after barbados cherry, aonlas and guavas. Ber fruits are gaining popularity for their nutritional value and health benefits. Insect and non-insect pests are thought to be responsible for roughly 30% of the production losses in the ber crop. This article contains marks of identification, nature of damage, their damaging symptoms on plants and their integrated management in field conditions.

Introduction

The major insect pest of ber (*Ziziphus mauritiana*) is Ber fruit flies (*Carpomyia vesuviana* Costa and *Bactrocera dorsalis* Hendel), fruit borer (*Meridarchis scyrodes* Meyrick), defoliating (june) beetle (*Holotrichia consanguinea* Blanch), and fruit bats (*Pteropus spp*.) (Gaur *et al.*, 2020). These pests damage the fruits and leaves, affecting the tree's overall productivity. As for its potential as an host for the lac insect **(***Kerria lacca***)**, it is important to manage the insect pest of the host plant. The lac insect, which produces natural lac resin, thrives on certain host trees, including ber, where it feeds on the tree's sap and secretes lac resin. The compatibility of ber as a host makes it significant in the lac industry in regions where both the plant and insect are common. IPM technology manages the pest population in such a manner that the economic loss is avoided and adverse side effects of chemical pesticides are minimized.

Major Insect Pests

- **Ber fruit fly *(Carpomyia vesuviana*)**

Fig 1: Different stages of the life cycle of Ber fruit fly and its damage symptoms on the fruit

Nature of Damage: The maggots start infestation with the onset of fruit setting. The fly lays eggs singly in the young developing fruits. After 2 to 5 days the newly hatched maggot's starts feeding on the pulp and make galleries with accumulated excreta and result in rotting of fruits. The larvaburrowthe flesh round the centre leaving excreta that give fruits a bitter taste. In arid region, the infestation starts from end of September and the higher incidence is during December-January.

Management: Deep summer ploughing in orchard soil during summer and rainy season destroys the pupa in the soil.

Incorporating soil with neem seed cake.

Infested fruits having larvae should be collected and destroyed.

Using resistant varieties like Tikadi.

Two sprays of quinalphos 30 EC@ 1.5 ml litre of water, first at pea stage of fruit growth and second spray after 15-20 days are very effective.

- **Ber stone weevil (*Aubeus himalayanus*)**

Fig 2: Nature of damage and symptoms of Ber stone weevil

Nature of Damage: When damaged fruits are cut open, the developing seed is completely eaten away by the pest. In the hollowed area, each of these fruits has a grub, a pupa oran adult which is identified as ber seed weevil. The infested fruits are round in shape and varied in size ranging from pea to pebble. The fruits do not attain maturity and never increase in size more than pebble.

- **Ber butterfly (*Tarucus theophrastus)***

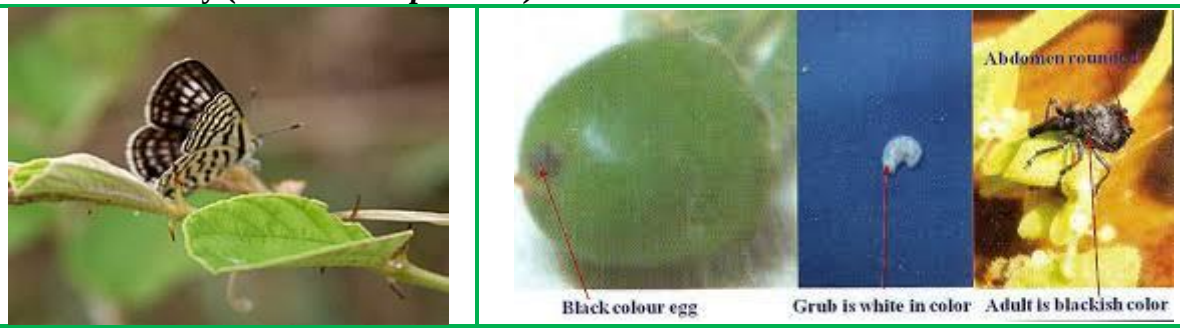

Fig 3: Nature of damage and symptoms of Ber butterfly

Nature of Damage: The ber trees are always severely pruned during May-June and the newly sprouting tender shoots and leaves are attacked by ber butterfly. Due to its attack, the leaves dry up and tender shoots do not grow properly. Larvae feed on sprouting tender shoots, leaves and flower buds. An infested leaf gives whitish look due to feeding of chlorophyll and finally the leaves remain with long streaks

Management: As the damage is hidden, the periodical monitoring of adult weevil activity will help detect the infestation on time. For its management, the spray schedule must be started from flowering to fruit set stage only. Spraying of Carbaryl 50 WDP 0.1% just before the fruit setting and repeat the sprays at three weeks interval was found effective and showed least adverse effect on honey bees activity (AICRP, 2004). Collection and destruction of adult

- **Ber fruit borer *(Meridarchis scyrodes)***

Fig 4: Different stages of life cycle of Ber fruit borer

Meridarchis scyrodes, a ber fruit borer (Lepidoptera: Carposinidae), has juvenile larvae that bore into fruits and feed on the pulp and mature larvae that amass excrement that may be seen outside the entry hole. From a distance, it is possible to identify the infected fruits. The wings of the mature ber fruit bore are fringed and have a dark brown tint. First instar larvae are greenish, whereas older ones are scarlet.

Nature of Damage: The larva 40bores into the fruit feeding on the pulp and accumulating faecal frass within. Up to of the fruits are damaged during July and August.

Management: Malathion at 2 ml/liter of water first spray at marble stage, second spray at 15 days later and third spray at fruit ripening stage by alternate use of insecticides would be effective against the fruit borer.

Conclusion

In India's arid and semi-arid regions, ber is a widely grown fruit. The fruit crop is becoming more and more popular among producers because it is a potential host plant of lac cultivation. Insect pests and diseases are more responsible for the preventable loss. In India, there are around 130 different kinds of insect pests that infest ber. Over a single control strategy, integrated systems would provide greater management at a lower cost and with less risk to the environment.

References

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