

INSECT PESTS OF BER AND THEIR MANAGEMENT

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Among arid fruit crops, Ber or jujube (*Ziziphus mauritiana* Lam.) is the most important fruit plant. It is also called 'king of arid fruits' and 'poor men apple'. It belongs to family Rhamnaceae. It has a multipurpose tree that supplies fruits along with fodder, fuelwood and fencing material to local people. Jhar ber (*Ziziphus mummularia*) and Bordi ber (*Z. rotundifolia*) are wild types of ber growing in different parts of Rajasthan.

Ber fruits are excellent source of nutritional and health security as they provide minerals, vitamins, antioxidants and phytochemicals. They are rich source of vitamin C and sugar with fair number of mineral constituents. Ber is richer than

apple in protein, phosphorus, calcium, carotene and vitamin C and excel oranges in phosphorus, iron, vitamin C, calorific values and carbohydrates. According to World Health Organisation recommendation, the daily diet of an adult human should contain 30 mg ascorbic acid. This requirement can be met easily by including three ber fruits in daily diet.



Ber fruits are excellent laxative, invigorating, remove burning sensation, alleviate thirst, control vomiting, and blood disorders. The astringent seed is a tonic for heart and brain, and alleviate

thirst. There are many reasons for low productivity of the ber fruits among them biotic factors like insect pests are major factors which results in low yield and poor quality of fruits and it causes yield loss up to 80 per cent under severe infestation. Ber is attacked by number of insect pests which reduce the production and productivity. Proper management is necessary to bring pest population below ETL.

Important insect pest of Ber and its management practices are given below-

Ber fruit fly:

Its scientific name is *Carpomyia vesuviana*. It belong to family Tephritidae and order Diptera.

Biology:

Female lays eggs in cavities made on the fruit with egg duration of 2-3 days and maggot period of 7-10 days. Fully grown maggot falls to ground and pupates in soil with pupal period of 5to30 days It completes 2-3 generations within a year.



Damage symptoms

- It is a Monophagous pest and maggots cause damage by feeding on fruit pulp that result in fruit rotting and ultimately fruit drop.

Management

1. Collect and destroy fallen and infested fruits by dumping it in a pit and covering with a thick layer of soil and ploughing to expose pupae.
2. Conserve parasitoids *Opius compensates* and *Spalangia philippinensis*
3. Use Methyl Eugenol lure trap (25/ha) to monitor and kill adults of fruit flies
4. Prepare Methyl eugenol and malathion 50 EC mixture at 1:1 ratio and take 10 ml mixture/trap
5. Soil application of chlorpyrifos / quinalphos dusts kills pupating maggots and pupae.
6. In case of severe infestation spray malathion or carbaryl.

Ber fruit borer:

Its scientific name is *Meridarches scyroides*. It belong to family Carposinidae and order Lepidoptera.

Biology: Adult lays eggs on flowers and tender fruits of ber. Adult moth is small dark brown and larva is reddish in colour. Fecundity of adult female is about 14 eggs. Egg, larval and pupal stages are 4-5, 14-18 and 8-9 days respectively with adult longevity of about 3-5 days.



Damage symptoms:

- First and second instar larvae are yellow in colour and that feeds superficially on the fruit while third to fifth instars larvae bore deep into the fruit and feeds on pulp and accumulate faecal frass.

Management

1. Collect and destroy the damaged fruits and rake the soil periodically.
2. Spray quinalphos 25 EC or pyrethroids alternately at tri-weekly intervals from mid-August onwards to keeps the pest under check.

Fruit weevil:

Its scientific name is *Aubeus himalayanus*, it belong to family Curculionidae and order Coleoptera.

Biology: Grubs are white in colour and apodous measuring 4-5 mm in length Adults are small dark brown in colour.

*Myliocerus dentifer**M. blandus**Amblyrrhinus poricollis*

Damage Symptoms:

1. Grubs feed on developing seeds inside fruits and affected fruits become round with varying sizes from pea to pebble.
2. Adult weevil remains in the fruit for some time and comes out by making a hole. Fruits do not attain maturity, become yellow and fall off.

Management:

1. Spray pyrethroids at tri-weekly intervals commencing from mid-August to keep the pest population under check.