Habitus (lateral) of *B. minax*

It attacks mandarins when the fruit diameter is 1-2 mm. It is a univoltine species, adults can only be spotted on canopy during May-June, it overwinters as pupae.

Management

- Male annihilation (MA) through para-pheromone (Methyl Eugenol) traps standardized by ICAR-DFID project (Plywood block, impregnated with para-pheromone (lure) in suitable containers called traps. Erect 8–10 traps/ acre, or NBAIR lures @5/ acre at a height of 3–6 feet from ground level, starting from 60 days prior to harvest. The traps need plywood lure replacement once in 30 days, and twice in late varieties. (Traps with ICAR-IIHR or ICAR-NBAIR license are recommended)
- A placement combination of male- female traps (ICAR-NBAIR) with MA traps 5:5 ratio/acre respectively enhances control.
- Keep basins of trees clean and raked from flowering to destroy pupae and prevent pupation. This will also facilitate collection of fallen fruits.
- Collect all fallen fruits regularly and put it in pits 3'x 3'x3' cubic feet, and treat with any insecticide. Females are attracted to such rotting fruits and they get killed in the pit. Cover the pits with poultry meshed nets to prevent non-target animals falling into the pit. After harvest the pits should be covered with soil and will serve as a source of soil nutrition enrichment.
- If aforementioned option cannot be done, then bait-spray with 10% jaggery/molasses with any toxicant (2ml Cypermethrin/litre) on the tree trunk from the base of the tree at 10-day interval should be done. This should start 30 days before harvest, and three bait-sprays should be given. (Note this should not be given on the canopy or in organic orchards.)
- In organic orchards, MA traps can be placed outside the border, or plywood block lures can be kept inside sticky delta traps. This trap is less efficacious than conventional traps, so at least 12 traps/acre are needed. Further, 2-3 sprays of neem oil emulsion [neem oil @5ml + 3ml soap (pH=7) / liter of water] should be given from base of the tree to entire canopy.
- Post-harvest: if the fruits are for export or distant markets or for processing, one hour dipping of de-sapped fruits in hot water tanks (46°C maintained thermostatically) will kill eggs and first instar maggots.
- In case of low-height, high density orchards bagging with poly propylene bags of suitable size are recommended. This is a very effective way of preventing infestation. The only caution is that adequate management of anthracnose should be ensured.
- In backyard mangoes with single or few trees, quite common in Goa and Kerala, a combination of MA trap (for each tree), followed by neem oil emulsion spray (as above) is sufficient.
- Retail consumers should always select hard semi-ripe fruits and keep it dipped in 5% salt water for one hour and then washed and air-dry and safely consume after ripening. This eliminates >90% of eggs and early instars.

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