INTEGRATED MANAGEMENT OF FRUIT SUCKING MOTHS
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Introduction

Fruit sucking moths are polyphagous pests infest crops such as citrus, grapes, pomegranate, guava, fig, cashew nut, apple, mango, melon, muskmelon, peach, pear, tomato, watermelon and many other fruit crops. Rainy season favors the activity of moths compared to the summer season. However, the infestation of fruit sucking moths is noticed throughout the year. During droughts, adult moths migrate to cooler, wetter areas. The outbreak of fruit sucking moth during wet season could cause 30% to 90% damage to crops. During night time, the robust adult moths infest the fruit and vegetable crops in the nearby orchards and fields.

Biology and identification of pest: The adult moths lay eggs on weed species viz., Cocculus pendulus, Cocculus indicus, Tinospora cordifolia and other wild plants around the fruit orchards. A female moth lays up to 750 numbers of yellowish green colour hemispherical shape eggs in its life time. The egg period lasts for 2 weeks. The emerging semiloopers from eggs undergoes 5 to 6 larval instars depending upon the species. The mature semilooper used to be stout, with colourful lateral spots on its body, unique two pairs of eye spots, dorsal hump on the terminal body segment and velvety dark brown to black in colour. The semiloopers are cryptic in behaviour and possess morphological adaptations, which matches with things of an ecosystem and at the time of any disturbance they show snake like threatening posture. The larval period lasts for 3 to 4 weeks. Since the larval stage of the pest feeds on the weed species it does not cause any damage to the crops. The mature semilooper pupates by webbing silken cocoon inside the pupal case made up of soil particle and leaf pieces. Brightly coloured fruit sucking moth emerge from pupa after 2 to 3 weeks after pupation. Adults are the destructive stage with longevity 26-28 days. Eudocima (Othreis) materna, E. fullonica, E. homaena are the most abundant common fruit sucking moths in Indian fruit orchards. Forewings of adult’s greyish brown in colour, hind wings are dark orange in colour. The species Eudocima fullonica have kidney shaped marking on the center of hind wing. The species Eudocima materna have circular spot on the middle of hind wing. Eudocima homaena have green bands in the middle of fore wings.

Damage symptoms: Adult fruit sucking moths damages the fruit orchard during night by piercing the ripened fruit skin using its strong proboscis and sucks the juice and makes pin holes.
Egg

Larva – semilooper

Eudocima (Othreis) materna

Eudocima fullonica

Eudocima homaena

Eudocima apta

Eudocima aurentia

Eudocima sikhimensis

Eudocima pholonia

Eudocima salaminia

Fruit sucking moth species

Note: The images were obtained from online sources.
on fruits through piercing. Which causes rottening around the pierced site. Fruit fermentation attracts the secondary pests, pathogens and saprophytes leads to rotting and dropping of fruits. Leads to reduction in fruit quality and yield.

Management practices

❖ Destroy the weed species such as Tinospora cordifolia, Cocculus pendulus, Cocculus hirsutus and wild plants in and around the fruit orchard. Weed hosts act as oviposition substrate and resting place for adult moths.
❖ The moths are active during dusk. Smoking during late evening time deters the fruit sucking moths from orchards.
❖ Fixing light traps attracts the adult moths during night 6.00 pm to 10.00 pm.
❖ In home gardens cover the trees such as pomegranate, lemon with net barriers.
❖ Collect and destroy the fallen, overripe and damaged fruits by burning or burying under soil to avoid moths attraction
❖ Harvest the fruits at right stage to avoid over ripening
❖ Fix poison bait trap (1 no. per 10 trees- 500ml) to attract and kills the adult moths. Fix the trap above plant canopy. Bait composition: Fermented molasses / Jaggery (10 g/ L of water) + Malathion 50 EC (1 ml/Lit of water) or Jaggery 1 kg + Vinegar 60 g + Malathion 50 EC 20 ml + Water 10 L or 2 lit of water + Jaggary 200 g + Vinegar or any fruit juice 12 ml + Malathion 50 EC 20 ml. poison bait should be changed periodically to attract more number of moths.
❖ During outbreak, mechanical collection of adult moths using handheld aerial insect nets with the assistance of torch light during night time is proven effective control method.
❖ Pesticide application on host plants has very little control, since the larval stage develops on weed hosts.

Conclusion

By following the recommended integrated pest management practices we can effectively manage the fruit sucking moths infestation in our home gardens and in orchards. Hence no pesticide spray should be done on crops as it may deteriorate the ecosystem besides leaving toxic residues.

References

Kulkarni R, Patil SK and Guru PN. (2017). Host specificity and biorational management of fruit sucking moth, Eudocima (Othreis) maternal, L. S. Pest Management in Horticultural Ecosystems 23: 12-16