

Varroa Mite management in bee keeping

General description and losses

Varroa destructor, an ectoparasite mite sucks the blood of larvae, pupae and adult bees. The female enters the cell with 4 to 5 days old larvae and lays eggs there. Varroa mite is reddish brown in colour, just like ticks, measuring 1.1 mm to 1.2 mm long and 1.5 to 1.6 mm broad. Honey bee mites have been extremely destructive to the honey bees which have caused a considerable damage touching 80% of the colonies during past 4 to 5 years in the state.

The life cycle and damage

The entire life cycle of varroa mites occurs within the hive. To breed, an adult gravid female mite enters occupied brood cells just before the cell is capped over where she remains



until the cell is sealed.



About four hours after capping she then starts feeding on the immature bee. Mated female varroa enters brood cells containing mature larvae just before the cells are about to be capped by hive bees. The female varroa submerge themselves in the larval food and feed on the developing bee.

Females lay eggs in the capped cells. Its life cycle is completed in 8 to 10 days in females and 6 to 7 days in males.

Spread of Varroa mites

- a) Varroa mites attach themselves to the abdomen or thorax of the adult bees which are present in the flora.
- b) Infested robber bee can transfer mites to previously uninfested hives. Also, a robber bee becomes host when stealing stores from an infected hive.



c) Transport of hives by migratory bee keeping.

d) Bees being moved between colonies.

- e) It can also spread by swarming or drifting bees. Drones especially can carry mites from one hive to another

Parasitic mite syndrome

- a) Presence of Varroa mites
- b) Reduction in adult by population.
- c) Evacuation of hive by crawling adult bees
- d) Queen supersedure.

Control

- a) Properly sterilize the combs.
- b) Remove old combs black in colour.
- c) Maintain proper hygiene of the colonies.
- d) Smoke the bees with tobacco leaves as such the irritated mites will fall on the bottom which can be collected on a sticky white paper placed on the bottom board and destroy the fallen mites.
- e) These mites are attached more to drone brood. Insert a full drawn brood comb in the middle of brood chamber. Most of the mites will be attracted to the drone brood. After 8 days when drone cells are sealed, remove and destroy the comb.
- f) Mix 3 parts of formic acid 85% with one part of water to dilute it to 65%. Then absorb 30 ml. of formic acid (65%) in absorbent pads (Folded tissues, paper towel, newspaper, cloth etc.) and place this pad on the top bar during cold climate (below 20 degree C) and during warm climate on the bottom board. This treatment should be used for three days with two treatments at an interval of three days.
- g) Thymol crystals are to be dissolved in 80% ethyl alcohol. The vapours of thymol penetrate even the capped cells to kill the mite, therefore, ***operation should be done when there is no honey.*** Mix 4 gms. Of thymol crystals 100mls. Of 80% ethyl alcohol and absorb 20 ml. of this solution in absorbent pads and place on the top bar of bee hives if temperature is below 20 degrees. This treatment is to be given 2 to 3 times in 8 days interval or more depending upon infestation.
- h) Oxalic acid treatment: 2 gms. Of oxalic acid is mixed in 100 ml. of 50% sugar solution. Sugar solution is to be boiled and cooled before mixing of oxalic acid. This 100 ml. solution is to be sprayed on 10 frames bee strength i.e. 10 ml. /frame. Repeat this spray 2 to 3 times in 8 days interval.

Timely application of these methods of spray and fumigation will minimize the mite infestation in the bee colonies.

Source : http://diragriju.nic.in/disease_control_Rabi_Crops.htm