

## PARASITIC MITE PEST ON HONEY BEE

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### Introduction

Honey bee has been considered as one of the most beneficial insects in agriculture throughout the world having immense role in pollination and the scientific method of rearing of honey bee is known as Apiculture (Bailey and Ball, 1991). More than 100 species of mites have been reported from honey bee out of them only *Acarapis woodi*, *Tropilaelaps clareae*, *T. koenigerum*, *T. mercedesae*, *T. thaii*, *Varoa jacobsoni* and *Varoa destructor* are considered as most damaging economic acarine pests of honey bee and their infestation may lead to destruction of the beekeeping industry in many cases (Sammataro, 2000; Coffey, 2007). The above-mentioned mite species are discussed below:

1. **Tracheal mite:** Tracheal mite of honey bee or *Acarapis woodi* Rennie, 1921 belongs to the family Tarsonemidae has been considered as internal parasite mainly infesting trachea.

**Life cycle:** The female mite enters the body of the honey bee through the large first thoracic spiracle and lay eggs on the wall of tracheal tube. Incubation period varies 3 to 4 days and female emerges within 14 to 15 days (Bailey and Perry, 2001).

**Infestation:** The mite colonizes on the tracheal tube walls and suck the haemolymph which make the bee very much dysentric and sluggish. The wings of infested bee get disjointed and become K shaped.

2. **Tropilaelaps spp.:** *Tropilaelaps clareae*, *T. koenigerum*, *T. mercedesae*, *T. thaii* are the four major Laelapid mite pest infesting honey bee (Koeniger and Muzaffar, 1988).

**Life cycle:** The duration of egg stage is estimated as 1-1.25 days. Eggs hatched into a six-legged larva and males looked like milky white in colour. Protonymphal stage has been recorded for

2.5-2.8 days and then converted into a deutonymphal stage. The total developmental period for female mite is 7-8 days and 6-7 days for males (Koeniger and Muzaffar, 1988).

**Infestation:** *Tropilaelaps* infestation is easily characterized by visible colony symptoms such as irregular brooding patterns, perforated brood chambers cappings, and newly emerged bees with abnormal and mishaped abdomens, irregular wing patterns and distorted or missing legs. In severe cases, infestations may led to the colony towards absconding.

3. **Varoa spp.:** *Varoa jacobsoni* and *Varoa destructor* are two external parasitic mite species of *Apis mellifera* and *Apis cerana indica*. Their infestation is known as Varroosis.

**Life cycle:** Female mite lays 2-5 eggs at varying intervals and eggs hatch after 24 hours. The complete development of the female takes 8-10 days and for male it is 6-7 days. The male mate with the female in the capped cells (Hoffmann and Curry, 2005).

**Infestation:** The mite is easily seen as brown or whitish spots with the naked eye against the white body of developing bee pupae when observed after uncapping. *Varroa* normally infect immature bees (larva and pupa), and their ability to do so is highly correlated with the number of *Varroa* species which has been found that enter a brood cell prior to it being capped. The more mite has been reported in a cell, the less likely the immature bee will develop successfully and emerge as an adult (Baggio, 2004).

### Conclusion

Mites are considered a most important pest for honey bee cultivation. Proper management strategy should be taken into consideration against those acarine pests for getting more profit from Apiculture. Control measures include manipulative methods, use of proper acaricides and other non-chemical treatments (removal of infected broods from colony).