

Management of pests and predators of Honeybee: Control strategies for improved bee keeping in India

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Abstract: Beekeeping supports the livelihoods of many marginalized communities in India, particularly in rural areas. While Indian honey bees are generally free from major diseases, except Thai sac brood virus, pests and predators cause significant losses, often leading to colony desertion. This study focuses on identifying common pests and their management in Maharashtra. The greater wax moth (*Galleria mellonella*) is a major pest in southern India, especially during July–October and November–December, attacking weak colonies and damaging brood, honey, and pollen. Other threats include the yellow banded hornet (*Vespa cincta*), wax beetle (*Platylolium alvearium*), robber bees, leaf cutter bee (*Megachile disjuncta*), and dragonflies. These pests, especially in unhygienic or weak colonies, impact honey production and threaten the economic stability of beekeepers. The study highlights control strategies to support improved and sustainable beekeeping in Maharashtra.

Pest : Wax Moths (*Galleria mellonella* & *Achroia grisella*) Larvae destroy combs, pollen, and brood.

Control: Maintain strong colonies, freeze infected combs, and use traps.

Predators:

Hornets (*Vespa mandarinia*, *Vespa tropica*) : Attack foraging bees and decapitate them to feed their young.

Control: Install hornet traps, reduce hive entrances, and monitor colonies during peak hornet season

▪ **Introduction :** Although Greater wax moth (*Galleria mellonella*) and lesser wax moth (*Achroia grisella*) are known to cause threat to apiculture. But, recently the hornet pests belonging to family Vespidae have gained the upper hand and are causing direct damages to the foraging bees and are leading to reduction in colony population, making the colonies weak and finally resulting in absconding or deserting of bee colonies (Requier et al., 2020).



Wax Moths



Fig. 1a. *Vespa mandarinia* Fig. 1b. *Vespa velutina* (spilargentea)



Green Bee eater

Varroa Mite (*Varroa destructor*) Parasitic mites that weaken bees by feeding on their bodily fluids.

• **Control:** Use screened bottom boards, drone brood removal, and organic miticides.



Varroa Mite

- Hornet pests of honey bees in the Indian Himalayas
- **Ants** Invade hives to steal honey and attack larvae. **Control:** Use physical barriers like oil moats and elevate hives

Birds (e.g., Bee eaters, Woodpeckers) Damage hives and stress colonies. **Control:** Use netting

or scare devices around apiaries.

• **Small Hive Beetle (*Aethina tumida*)**

• Larvae feed on honey, pollen, and brood, causing fermentation.

Control: Trap beetles, maintain hive hygiene, and avoid excess space.

Selected References : Aizen et al., 2008, Anonymous, 2019, Uniyal et al., 2018, Shah and Shah, 1991, Requier et al., 2020).

- **Conclusion :** Strategies would improve bee keeping : A trap developed for controlling hornets showed up to **83% efficiency**.
- Designing of the bait trap for managing the hornet menace in the apiaries Considering the severity of attack and the amount of loss incurred to the apiarists of Indian Himalayas
- Various pests and predators cause major losses in apiculture.
- These pests reduce honey bee colony strength and productivity, directly impacting the beekeeping industry.
- The resulting decline affects both rural livelihoods and the broader economy.
- Effective pest and predator management is crucial for sustainable beekeeping in the Indian context.

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Beekeeping is one of the small scale industries in India which provides lively hood of many marginalized sections of the society. However, health of honey bee is utmost priority for improved bee keeping The Indian bee is comparatively free from many infectious diseases except Thai Sac brood virus. In our country bee enemies are more dangerous taking a heavy toll of life, as a result of which annually many colonies deserted by the bees. Pests of honey bees causes losses to bee keeping thereby affecting the yield of apiculture and also hampers the upliftment of weaker sections of the people especially tribal, vulnerable people from far rural part of India. In view of the above present study focussed on Overview and Management of pests and predators. The greater wax moth, *Galleria mellonella* is major pest of honey bee recorded from South part of India it is seen causing severe damage in the plains and lower altitudes but it is rare in high altitudes. It is one of the most observed throughout the year but more common and severe during July to October and November to December. They attack weak colonies and carry away the honey, pollen and the brood. The yellow banded hornet, *Vespa cincta* F. is a large wasp with a broad transverse yield band on the abdomen. Wax beetles. The tenebrionid beetle, *Platylolium alvearium* B., is found in the hives under unhygienic conditions feeding on the debris and on old combs in weak colonies. The Robber bee, the leaf cutter bee *Megachile disjuncta*, dragon flies and capture bees and feed upon them. In the present study we have enlisted the pests, and predators of honey bees from different parts of Maharashtra and also focussed on their control by using appropriate strategies for improved beekeeping in Maharashtra, India.