



Tamil Nadu Agricultural University
Coimbatore – 641 003

Dr. M. Rajavel, Ph.D.,
Public Relations Officer
Mobile: 94890 56730

Phone: 0422 - 6611302
Fax: 0422 – 2431821
E-mail: pro@tnau.ac.in

To
The Editor,
Sir,

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I request that the following message may kindly be published in your esteemed daily:

**An Invasive Threat to HoneyBee Colonies in Tamil Nadu:
Occurrence of the Small Hive Beetle, *Aethina tumida* Murray**

1. Significance of the Alert

The Small Hive Beetle (SHB), *Aethina tumida* Murray (Coleoptera: Nitidulidae), is a scavenger-cum-predator of honey bee colonies, native to sub-Saharan Africa. Once regarded as a minor pest of weaker African *Apis mellifera* colonies, it has since spread far beyond its native range and caused significant colony losses worldwide. The World Organisation for Animal Health (WOAH) classified SHB infestation as a notifiable pest of honeybee in 2013, reflecting its recognised status as a serious international threat to apiculture.

In India, SHB was first confirmed in September 2022 in Italian bee (*Apis mellifera*) colonies at North 24 Parganas, West Bengal, and subsequently spread to several other districts of the state. It was next detected in November 2023 across West Godavari, Guntur and Eluru districts of Andhra Pradesh, where severe infestations led to the loss of an estimated 12,635 colonies. A further occurrence was confirmed in March 2024 in Goalpara district, Assam, and in July 2025, Karnataka officially reported their incidence, marking a major southward and central expansion in a key honey-producing region. These reports marking its establishment across four major beekeeping regions of the country.

New Report in Tamil Nadu: SHB was first observed in Tamil Nadu on 22 July 2026 in colonies of both the Indian honeybee (*Apis cerana indica*) and the Italian honeybee (*A. mellifera*) in the Anamalai area of Pollachi, Coimbatore district. A follow-up survey by Tamil Nadu Agricultural University covering nine apiaries in the hotspot areas on 28 July 2026, comprising 10 *A. mellifera* colonies, 186 *A. cerana indica* colonies, and two abandoned *Apis dorsata* (rock bee) colonies, found infestation of SHB in cent per cent *A. mellifera* colonies, around 82% of *A. cerana indica* colonies, and both abandoned *A. dorsata* colonies in monitored apiaries. This indicates an already substantial, multi-species infestation across the surveyed apiaries in the Pollachi/Anamalai belt, rather than an isolated single-colony case, and underscores the need for immediate containment action in and around this hotspot alongside heightened surveillance statewide.

Indian bees, *A. cerana indica* and European honeybees, *A. mellifera*, form the backbone of commercial and migratory beekeeping in Tamil Nadu, are markedly more vulnerable to SHB. A colony that appears

healthy can collapse within days once beetle numbers build up, making early detection and prevention far more valuable than post-outbreak control.

2. Identification and Biology of the Small Hive Beetle

The small hive beetle (SHB) undergoes a complete metamorphosis, termed holometabolous development, which encompasses four distinct stages: egg, larva, pupa, and adult. The duration of this life cycle ranges from 4 to 12 weeks, contingent upon environmental conditions.

Egg: Female adults lay eggs in irregular clusters, typically comprising 10 to 30 pearly white eggs, within cracks, crevices, or brood combs inside the hive. They may also lay eggs hidden behind the operculum of sealed cells containing a bee larva or pupa, making it difficult for the nurse bees to detect them.

Larva: The larvae, characterized by their cream colour and worm-like appearance, possess rows of spines along their backs. This stage is particularly destructive, as the larvae tunnel through combs and consume brood, pollen, honey, and bee eggs. Mature larvae can travel up to 100 meters to locate suitable conditions before burrowing into the surrounding soil to pupate.

Pupa: Mature larvae burrow 10 to 20 cm into moist, loose soil to undergo pupation.

Adult: Newly emerged adults are initially oval and light brown, darkening to black following sclerotization. They measure 5 to 7 mm in length and are proficient fliers, capable of traveling 10 to 15 km to locate a new host colony, guided by the scent of fermenting hive products. They actively feed on honeybee eggs, sometimes biting holes in the brood comb cells to access and consume the contents.

Life Cycle: Eggs hatch within 1 to 3 days under high humidity conditions (>70% RH). The larvae feed for 7 to 14 days, although cooler temperatures may prolong this period, before departing the hive to pupate in nearby soil. They emerge as adults within 3 to 4 weeks and can live up to 6 months. Throughout their lifespan, females may lay up to 2,000 eggs.

3. Nature of Damage: The larvae of the beetle tunnel through brood comb, causing physical destruction to the wax comb structure and damaging eggs, larvae, and pupae. They defecate in the honey, and the yeast present in the beetle grub's feces induces pollen and honey to undergo fermentation and frothing, a process known as "*slime-out*," which renders the honey unsuitable for extraction or sale. SHB releases compounds into the honey that act as aggregation pheromones, attracting more individuals to the infested hive and worsening its condition. Severe infestations prompt bees to abscond, weaken colony defenses, and may result in complete colony collapse within one to two weeks. Additionally, beetles damage stored comb, frames, and processing/extraction areas, and can persist in stored equipment, thereby spreading infestation to previously unaffected apiaries.

Symptoms of Damage:

- **Damaged/destroyed brood combs:** Indicators of damage include the presence of wandering small hive beetle (SHB) adults and mature larvae on the comb and bottom board, as well as unsealed brood cells and breached honey storage walls, hence check the combs thoroughly using light. It would cause extensive damage if left unaddressed.
- **Contaminated honey:** These beetles will eat and contaminate honey stores. The honey loses viscosity, becomes thinner, and begins to bubble out of the cells. If supers containing honey are

removed from colonies and stored in extraction facilities for more than 48 hours, hidden beetle eggs and larvae can rapidly ruin entire commercial honey harvests within days.

- **Contaminated honeycombs:** The comb becomes covered with a foul-smelling, sticky, orange-tinted slime, with an odour reminiscent of decaying citrus or rotten oranges.
- **Hive abandonment:** This slime is highly repellent to adult honeybees, causing worker bees to lose their nesting drive and the queen to cease egg-laying. Consequently, the remaining worker population abandons the hive, leading to its complete collapse.
- **Traps:** Place corrugated cardboard in the bottom board, to detect activity of SHBs, as they tend to seek a hiding place.

4. Main routes of spread

They disperse by flight and it can fly more than 3 to 4 km per day and 10 to 15 km per week and is favoured by *transhumance* (**migratory** or **nomadic beekeeping**). The eggs may also adhere to bees as a secondary means of dispersion. The movement of bee colonies throughout the country, either by migration in search of nectar flows or for pollination services, would be a strong factor in favour of SHB dispersion. In addition, transporting used frames, supers, boxes, and tools containing hidden adult beetles or resilient eggs from infested areas, and live bee trades *viz.*, moving packaged bees, queen cages, and entire colonies also form the means of dispersal.

5. Precautions to prevent entry into Apiaries

a) Surveillance and Monitoring

- Inspect colonies at least once every 7-10 days, focusing on hive bottom boards, corners, and gaps where beetles hide from guard bees.
- Install bottom-board oil traps or commercial SHB traps (corrugated-plastic or drawer type) baited with vegetable oil or apple cider vinegar, and check weekly.
- Watch for early warning signs: bees clustering unusually at hive entrances, a sour/fermented odour, or slimy, discoloured comb.

b) Hygiene and Apiary Management/ Preventive Hive Management Techniques

Maintaining a strong, defensive bee colony is the most effective defense against an SHB infestation.

- **Maintain Colony Strength:** Maintain only strong, queen-right colonies; requeen or unite weak colonies promptly, as SHB preferentially exploits stressed or queenless hives. Strong colonies actively cluster together, guard the perimeter, and physically harass adult beetles to prevent them from laying eggs.
- **Prompt honey harvest:** Harvest honey promptly and do not store wet supers, cappings or unprocessed comb for long periods; extract wax without delay.
- **Reduce Nest Volume & hive entrance:** Remove any unoccupied honey supers or empty frames. Minimizing empty space deprives beetles of hidden areas where they can breed away from worker bees. And, also reduce hive entrances to a size the colony, to enable them to defend.
- **Maximize Sunlight Exposure:** Place hives in full sunlight rather than under heavy shade, which helps to keep the soil dry and discourages adult beetles. SHBs prefer warm, humid, and shaded environments, while sunlight keeps the hive dry and reduces beetle activity. And also keep the apiary site weeded, and

free of loose soil or leaf litter near hive stands, since SHB larvae pupate in soil within a few metres of the hive.

- **Seal Hive Cracks:** Repair or seal splintered wood, gaps, and cracks in the hive body. Adult beetles look for tiny crevices under 2 mm wide to hide from aggressive worker bees.
- **Keep Bottom Boards Clean:** Clean out hive debris, fallen wax, and dead bees regularly. Accumulations of organic waste on the bottom board attract beetles and feed their larvae.
- **Avoid Protein Overfeeding:** Limit the use of open pollen supplements during peak beetle season. Exposed protein patties serve as a highly nutritious breeding ground for beetle larvae.

c) Quarantine and Movement Control/ Containment Protocol (Do Not Move Hives)

- **Enforce Strict Quarantine:** Do not move any bee colonies, honeycombs, or equipment out of Pollachi (identified hotspot). Migratory beekeeping is the primary driver of rapid cross-infestation in India. Restrict migratory beekeeping movements from/ into known infested tracts, and disinfect/sundry equipment, boxes and vehicles used for transport. Do not procure bee colonies, package bees, used equipment, or comb from apiaries or regions with confirmed SHB occurrence without inspection. Quarantine and inspect newly acquired colonies away from the main apiary for at least 2-3 weeks before integration. Avoid moving colonies, comb, or used equipment out of the infested district until assessing the affected apiaries.
- **Check for Slimy Honey:** Look for a characteristic fermented, rotting-orange smell and a slimy substance covering the combs. This indicates larvae are actively defecating in the honey.
- **Inspect Hive Crevices:** Adult beetles (5–7 mm, reddish-brown to black) hide in dark corners and frame gaps away from bee activity. To prevent the spread of *A. tumida*, it is essential that both colony sellers and buyers are to be trained thoroughly to inspect hives prior to any sale or transfer. SHB infestations often go unnoticed in early stages, especially in weak or abandoned colonies.

d) Immediate Containment Steps in infested areas

- **For affected colonies:** scrape and remove any slimy or damaged comb, extract or destroy affected wax, and place bottom-board oil traps immediately in all *A. mellifera*, *A. cerana indica*, and any *A. dorsata* colonies at the surveyed apiaries. Do not shift frames or equipment from these colonies to any other hive.
- Extend inspection to all other apiaries in the infested belt and neighbouring taluks, given that infestation was already found in many surveyed colonies across multiple bee species.
- Beekeepers within an approximately 10-15 km radius of the detected site should intensify inspection frequency (every 3-5 days) and deploy oil/vinegar traps as a precaution, since adult beetles can fly several kilometres, with anecdotal reports of flights over 10 km a day.
- Colonies having early infestation can be protected by strengthening the colony or requeening, in case of absence of queen and trapping the larvae and adults.
- Rake the soil around the hive and apply neem cake to kill grown up larvae and pupae.
- Apply entomopathogenic nematodes (e.g., *Heterorhabditis indica* or *Steinernema carpocapsae*) to the soil around the hive to kill pupating larvae.
- Improve drainage around apiaries, as beetle pupation occurs in soil

- Destroy the heavily infested combs by burning and disinfest the hives and frame by flame thrower or fire gun.

6. Key insights for beekeepers

The Small Hive Beetle (SHB) is a notifiable exotic pest, and recent detections in West Bengal, Andhra Pradesh, Assam, Karnataka and now in Tamil Nadu indicate a clear east-to-south spread that places Tamil Nadu apiaries at genuine risk; chemical control inside hives is largely unsuitable due to bee toxicity, making soil-based measures — including soil drenches and entomopathogenic nematodes targeting the larval and pupal stages — the preferred options; movement of equipment, package bees and queen stock remains the principal pathway for long-distance spread, underscoring the need for strict trade hygiene and regulatory screening; Tamil Nadu's warm, humid conditions and loose soils favour SHB development, necessitating continuous year-round vigilance; and early detection is critical, as colonies with low beetle numbers can often be stabilised through requeening, comb reduction and trapping, whereas heavily infested colonies rarely recover.

Issued following confirmation of a localised SHB detection in Pollachi (28 July 2026), in the interest of safeguarding Tamil Nadu's apiculture and pollination services. Beekeepers statewide, and especially in and around Pollachi, are urged to remain alert and report suspected sightings to the Director, CPPS, TNAU, Coimbatore, without delay.



Eggs



Adult Beetle



Larvae



Larvae

Public Relations Officer