



STUDY OF BEES ACTIVITY DURING DAWN AND DUSK TIME ON INDIAN HONEY BEE- *APIS CERANA INDICA* FAB., *APIDAE: HYMENOPTERA*

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Abstract

Honeybees live compatibly in a large family in a common nest or colony and work collectively in a remarkable cooperation to ensure their survival. Without each other they can't survive. Their goal is to raise young bees and make honey for their immediate needs and to lay down stores to carry them through times when there is none available as in the winter.

Key words: Indian honey bee (worker bees), honey comb build up, honey yield, foraging activity.

Intorduction

A colony of honey bees includes a queen, worker bees and drones. Each member has a specific function to do in the colony. The job of the queen is to lay eggs to produce off spring and multiply the numbers in her colony. So the number of bees are optimal for the main flowering, nectar and pollen gathering season. The main function of the drone is to fertilize the origin queen. The worker bees do all the work of the colony in the course for its life, for example, cell cleaning, nursing young bees, building combs, guarding the hive entrance, ventilating the hive and collecting nectar, pollen, water and propolis.

Materials and method

Methods for keeping Sugar solution

- (a) The study was conducted at Annamalai Nagar campus during 2012-2013 in the dept of entomology, Annamalai Nagar. Indian bees are involved with various regular activities and bee behaviour to ascertain its efficient exploitation for pollination. Observations were made with Annamalai Nagar crop ecosystem with latitude of 11^o.23'48"N and longitude with 79^o.42'58" with +4.680 m MSL.
- (b) Bees can also use the sugar syrup as food (sugar dissolved) in an equal quantity of water. Sugar is offered to supplement honey resources or in the extreme case to save the weak colonies from

starvation. Early in the spring, when the flowers are not in abundance bees can be stimulated to start brood rearing, as it should synchronize with the main honey flow, so that the bees can take best advantage of it.

Under proper management, not more than one or two kilograms of sugar are needed to use in a year/colony.

When the stores fall below this level, bees should be fed artificially. If syrup is given as a winter reserve, the syrup should be thick, prepared by mixing two parts of sugar with one part of warm water.

Observations-Bee keep in Calender

Januray:

Fed the honey bee with sugar solution 1:1 ratio. Worker bees start collected nectar and pollen. Death of older bees in and around the hive due to the heavy spring, due to the over winter (*spring dwindling occurrence*).

February:

Honey nest expansion (Honey comb build up) during this month. Some of the black ants and red ants occurrence over the bee hive. Bee hive stand smeared with ant powder (methyl parathion) to avoid the ant problem. Worker bees involved with bee foraging activity.

March:

Bee hives slowly build up with spring season. Boosting up of very weak colonies. Nectar and pollen heavily build by worker bees. Hive build up with an early spring season.

April :

Daily checking up of the honey comb build by frames. Kept a sugar syrup and cleaning a hive from natural enemies.

May:

Brood nest reduction. Honey comb attacked by cockroaches, lizards and frogs.

June:

Honey flow season coincide with the blooming plants. Daily check up the colony and ensure with sugar solution. Honey bee population builds up primary swarming may occur and settles nearer to the bee hive.

July:

Check up the colony regularly at weekly intervals and also daily observation of bee colonies. Checking supers, move less full peripheral super frames in adding of additional super necessary.

August:

Due to winter season occurrence of wax moth damage (Greater wax moth) slowly. Checking of varroa mite infestation.

September :

Observation of hive regularly and found any mite infestation. Supply heavy sugar solution to the colony.

October:

Continuous feeding with sugar syrup. Check up the colony if any disease present.

November :

Some of the swarming bees, settles nearer to the bee hives in various trees like neem and tamarind etc.,

December:

Some of the swarming bees, settles nearer to the bee hives.

**Results and discussion**

Bees activity observed with dawn and dusk time and worker bees activities noticed. The observation hours like 6:45a.m, 7:00a.m, 7:15a.m, 7:30a.m, 8:00a.m, and 9:00a.m. Similarly the evening activities of honey bees also noticed. During evening hours like 5:45 p.m., 6:00 p.m., 6:15 p.m., 6:30 p.m.

The colony of honey bees needs warmth, sun, nectar, pollen and water to thrive. The temperature needs to be at least 12.c for the bees to be able to fly out to collect food. Honey bees collect nectar from flowers as food and store it in their hive for the water.

Besides collect nectar, bees also collect pollen which is an important protein food for the bees and is essential for young bees to grow.

Swarming generally occurs in March to June. The old queen departs with about half of the bees in the colony continue their work rearing brood and collecting their work rearing brood and collecting food. When a virgin queen emerges from her cell, she stings the remaining queen cells and kills any other queen she finds. Six to eight days after emergence the virgin queen flies out to mate with drones and return to the colony as the new queen and starts to lay eggs two to three days after mating.

Flowers are the main stay of the bee's life. From flowers, they obtain pollen, the protein-rich food used mostly to feed the brood, and nectar, the carbohydrate fuel for their flight, hive activity and for rearing brood. The bees are automated micro manipulation by which man can harvest floral resources which would be otherwise unobtainable. These micromanipulators also work to bring about pollination which is required by many economically important plants if a crop is to be produced. Honey bees are certain flowering plants have, therefore, evolved a well adjusted system of interdependence, and such relationship is one of the most significant events of organic evolution.



The flora from which bees collect good amount of nectar as well as pollen are often called nectar flora/ bee flora, because this type of flora is most suitable for bee keeping. The great importance for a bee colony as pollen provides proteins which are essential for worker bee to secrete glandular food for rearing brood.

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