International Journal Of

Recent Scientific Research

ISSN: 0976-3031

Volume: 7(11) November -2015

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THE OFFICIAL PUBLICATION OF
INTERNATIONAL JOURNAL OF RECENT SCIENTIFIC RESEARCH (IJRSR)
http://www.recentscientific.com/ recentscientific@gmail.com

ISSN: 0976-3031

Available Online at http://www.recentscientific.com

International Journal of Recent Scientific Research
Vol. 6, Issue, 11, pp. 7132-7134, November, 2015

International Journal of Recent Scientific Research

RESEARCH ARTICLE

SEASONAL ACTIVITIES OF *INDIAN HONEY BEE-APIS CERANA INDICA* FAB., AND THEIR MANAGEMENT

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ARTICLE INFO

Article History:

Received 06th August, 2015
Received in revised form 14th September, 2015
Accepted 23rd October, 2015
Published online 28st November, 2015

Key words:

Spring season, winter season, Bee population, activities of bees, worker bee, queen bee, drone bee duties.

ABSTRACT

A colony of honey bees comprises a cluster of worker bees around 60,000 (sexually immature females) a queen (a sexually developed female) and depending on the colony population and different favourable seasons, and few to several hundred drones (sexually developed males) in a bee colony normally only one queen, whose sole function is egg laying.

During spring season, the population of the colony expends rapidly and the proportion of young bees increases. Filed bees may collect nectar of brood rearing and surpluses of honey pollen may accumulate.

INTRODUCTION

Enjoyed with the bees as they work, building comb and brooding comb, bringing nectar back to the hive, etc. during the seasonal study period regarding Indian honey bees and their activities were observed nearer to the bee hives. The amount of surplus honey that could be gathered from the bee colonies is mainly dependent upon the abundance of nectar secreting plants in the vicinity of an apiary.

MATERIALS AND METHODS

Bees hive inspections:

How to install a bee colony?

Honey bee colonies installed at the time ranges between 6 to 7 a.m. mornings (or) evening 4.30 to 5.30 p.m. The Indian honey bee, *Apis Cerana indica Fab*., colonies were maintained in Newton's bee hive model, near the mango yard and shrubs. more no of bees arriving leaving near the bee hive during different seasons.

Hive behavior and hive inspections

Hive inspector must protected by a bee veil, bee suits. Daily morning and evening hours the hive inspector regularly visited the bee hives. Hive bees monitored with any natural enemies attack.

How to maintain a sugar solution (sugar syrup) in coconut shells/ plastic containers?

By using coconut shells/plastic containers were filled with honey solution/sugar syrups. These were used to feed the honey bee. In general, sugar solutions @ 1:1 ratio were used. Small broom sticks were kept inside the coconut shell through which honey bee climbing ups and downs. Small petriplates were maintained to keep the sugar solution.

How does gather pollen (Pollen carrying capacity of bees)

The Indian honey bee, Apis Cerana indica Fab, colonies were studied by collecting the maximum observations regarding bees.

Bee floral calendar

Some of major floral sources nectar and pollen enriched plants were observed. The plants and flowers play a main role regarding pollination.

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Advantages of bee pollination

Honey bees are the most efficient pollinators of several cultivated and wild plant because of their following characteristics their bodies are specially adapted to pick-up pollen grains.

As a result of cross-pollination by bees, somatic, reproductive and adaptive heterosis /hybrid effects occur in plant progeny, either in a single way/ in different combinations.

RESULTS AND DISCUSSION

Honey bee activities throughout the year.
Bee Keeping Calendar.

January

- Feed the honey bee with sugar solution @1:1 ratio
- Worker bees collected the nectar and pollen
- Death of older bees in and around the Hive due to heavy spring & snow fall
- Spring dwindling occurs during snow fall time

February

- Honey nest expansion (Honey comb build up)
- Some of the black ants and red ants disturbs the bee colony
- Bee hive stand smeared with ant powder so that we should prevent the colonies from ant attack.

March

- Bee hives slowly build up with spring season, boosting of very weak colonies.
- Busy bees –worker bees activity bee buzz. Before placing a new queen with in the colony, remove the old queen and all swarm cells
- Place the new queen over two frames of broods.

April

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

May

- Brood nest reduction
- Attack the honeycomb by cockroaches, lizards and frogs.
- The Hive prevent from the wax moth damage.

June

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

July

- Check up the colony regularly at weekly intervals.
- Even if pollen is stored in the combs. During cold winters, the colony is put to its severest test of endurance.

August

- Bee colony attacked by greater wax moth damage slowly.
- At the month end of august greater wax moth damage occurs very severely.

September

- Supply heavy sugar solution to the colony and checking of mite infestation
- Observation of honey colony regularly.

October

- Continuous feeding with sugar syrup.
- The egg laying of the queen bee tapers off and may stop completely during October- November

November

- Some of the swarming bees, settles to the bee hives in various trees like Neem, Tamarind, etc.,

December

- Some of the swarming bees settles nearer to the bee hives.
- The activity of the colony diminishes. In the temperate regions, the winter temperature is so low that the bees can't fly out of the hive.
- The queen stops laying eggs and the bees do not raise brood.
- During this month honeybees keep warm themselves.
- They will stop flying when the temperature falls below 10°C/8°C and remain in the hive, eat stored honey to generate heat and cluster together tightly to the middle of the hive.
- Honey bees live compatibly in a family in a common nest (or) colony and work collectively in a remarkable cooperation to ensure their survival.
- A colony of honeybees includes a queen, worker bees and drones (male bees) each member has a specific function to do in the colony. The job of the queen is to lay eggs to produce offspring and multiply the number is her colony so the numbers of bees are optimal for the main flowering and nectar and pollen gathering season.
- A good queen can lay around 1000-1500 eggs per day during active breeding season. The egg laying rate of the queen depends and the time of the year. The egg

laying rate starts at a low level in the late winter and increases to peak about midsummer.

- The worker does all the work of the colony in the course of 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.
- The queen lives five years. Adult worker bees born early in the season will live about 6 weeks while those born in autumn will live until the following spring because they are less active then.
- All members of the colony have a distinctive scent, and by this can recognize mats of their own colony. Guard bees at the hive entrance use their entrance to examine incoming bees and bees from other colony are detected and denied entry.
- The colony of honeybees 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 winter, besides collecting nectar, bees also collect pollen which is an important protein food the bees and is essential for young bees to grow.
- Honey provides the energy for, bees flight and for heating the hive during the winter season.

Acknowledgement

The Authors are highly thankful to the YMCA, Marthandam, Kanyakumari District., to obtain Bee Colonies for research work and also Department of Entomology, Faculty of Agriculture, for their timely help and encouragement throughout the year.

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How to cite this article:

Pushpalatha S and Hari Prasad Y.2015, Seasonal Activities Of Indian Honey Bee-*Apis Cerana Indica* Fab., And Their Management. *Int J Recent Sci Res. Vol. 6, Issue, 11, pp. 7132-7134, November, 2015*

ISSN 0976-3031