

Notes

Title of the unit : Unit 3 **Apiculture**.

Module Name : Introduction; Types of Honey Bees.

Module number : 8

Introduction: Rearing of Honey bees for honey is called **Apiculture**. The term is derived from scientific name of honey bee, *Apis*. It is also referred as **Bee-keeping**. The place where bees are kept is called **Apiary**. It is an agro-based cottage industry. Bees are domesticated to produce **honey** and **beeswax**.

Scope:

- Apiculture is a cottage industry, needs minimum skills.
- It is profitable & economically viable for rural people.
- It develops on a small scale with very less investment.
- Apiculture provides employment to rural people.
- Research in Apiculture provides employment to researchers.
- The product-**Honey** is used in medicine and as nutrient.
- By-product Beeswax is used in polishes, cosmetics and pharmaceutical industries.
- Bee-keeping helps farmers to increase yield by cross pollination.

Methods of Beekeeping:

The ancient method of bee keeping was called **primitive** or **indigenous beekeeping**, in which people gathered honey from the wild by destroying the colony and harvesting the honey. Later people reared bees in primitive hives using **moveable hives** like pot hive, basket hive, log hive, barrel hive etc. in which the bees fixed the hives, after ripening they were harvested by destroying the combs.

Modern beekeeping is the scientific rearing of honey bees using movable comb hives where honey bees construct combs on frames which are replaceable after harvesting the honey. Langstroth and Newton hives are examples of modern hive.

Apiculture in India: Bee keeping has developed as a cottage industry since 1928. In India, Bee keeping is far back compared to Europe and America. *All India Beekeeping Association* was formed in 1939. *Central Beekeeping Research Station* was established in Punjab in the year 1945. Formation of *All India Khadi Village industry Commission* in 1953. *Beekeeping Directorate* was established in 1956. Establishment of *Central Bee Research and Training Institute* at Pune in 1962. In 1952, beekeepers were 232 and yielded 1.28 tons of honey. In 1994, the number of beekeepers was 23,600 and honey quantity was 5,529 tons.

Presently, India ranks 9th in top 10 producers of honey products with about 2.64 lakhs honey producing units, yielding about 94,500 tons of honey.

Systematic position:

Phylum : Arthropoda
Class : Insecta
Order : Hymenoptera
Family : Apidae
Genus : *Apis*
Species : *dorsata, florea, indica* and *mellifera*.

Habit and Habitat: Honey bees are social insects. They are active throughout the year, spring and autumn seasons are favorable seasons. They show polymorphism and division of labour. Bees prefer habitats like orchards, The house of bees is called *Hive*, which has large number of hexagonal chambers made of beeswax, where adults, young and grubs live together. Pollens and honey are also stored in the hive. Bees communicate with the members of the hive by a bee-language called as *waggle dance*. Bees fly at about 25km/hour and to produce 1kg. of honey, it has to visit about 4 million flowers, meadows and gardens, with plenty of flowers.

Honey Bee Morphology: Honey bee body is divisible into *head, thorax and abdomen*. Head has chewing and lapping type of mouth parts, a pair of large compound eyes and a pair of antennae. Thorax has two pairs of wings on dorsal side and three pairs of jointed appendages on ventral side. Abdomen is 7-11 segmented and has no appendages, sting is present on the last appendage as defense organ in workers, vestigial in queen and absent in drones.

Advantages of Bee keeping: Bee keeping requires *less time, money* and *infrastructure*. It is *eco-friendly* and can be practiced from an area of little agricultural value. Bee keeping has positive ecological consequences. Bees play an important role in *pollination* of flowers and thus increase the yield of crops. Apiary can be run by individual or group of any age. Bee products have high *market potential*. Honey is a delicious and highly nutritious food. Beekeeping also helps in conservation of bees.

Types of Honey bees: There are 20,000 species of wild bees, solitary or colonial. Important species reared are - *Apis mellifera* (European bee), *Apis dorsata* (Rock bee), *Apis florea* (Little bee). *Apis cerena indica* (Indian bee). *Melipona irridipennis* (Dammer or Stingless bee), belonging to family Meliporidae. Apiculture is concerned with practical management of social honey bees which live in large colonies up to 100,000 individuals.

Apis mellifera: It is commonly called as **European bee** and has many subspecies, adapted to movable frame hives. It has a prolific queen, with gentle temperament. They are good nectar collectors. A single comb yields 45-181 kgs. Of honey.

Apis dorsata: It is commonly called as **Rock bee/ giant bee**. It measures about 20 mm.in length, being the largest Indian bee. These bees are good nectar gatherers. Each colony forms a single huge open comb on overhanging rocks or under branches of trees. A single comb yields about 25 kg. of honey. Due to their irritability, rock bees cannot be kept in movable frame hives.

Apis florea: It is commonly called as **little bee/dwarf bee**, as it is smallest among all bees. It makes a single comb suspended from branches, under the walls or ceilings. Honey is stored in top portion of the hive. These are poor gatherers of honey. It yields about half kg. of honey per year, hence not economical.

Apis cerena indica: It is commonly called as Indian bee. These bees make series of parallel combs. These are mild in nature, hence easy to handle. Bees are good gatherers of honey, thus very productive.

Melipona irridipennis : It is commonly called as **Dammer Bee or Stingless Bee** as stings are reduced, thus cannot sting. These are small in size. It makes hives in holes of trees, cracks of walls and stones. The yield of honey is 60 -

150gm./year but reared for pleasant taste of honey.
